FIRST QUARTER 1994
GROUNDWATER SAMPLING EVENT

NL/TARACORP
SUPERFUND SITE
GRANITE CITY, ILLINOIS

Prepared for

U.S. Environmental Protection Agency
Region V
77 West Jackson Boulevard
Chicago, Illinois 60604-3590

August, 1994

U.S. Department of the Army
Corps of Engineers, Omaha District
Omaha, Nebraska

QUARTERLY GROUNDWATER SAMPLING PROGRAM: FIRST QUARTER 1994 GROUNDWATER SAMPLING EVENT NL/TARACORP SUPERFUND SITE PREDESIGN FIELD INVESTIGATION

1.0 INTRODUCTION

The 1994 first quarter groundwater sampling event for the NL/Taracorp Superfund Site (NL Site), in Madison County, Illinois, was conducted as part of Work Order No. 0029 of Woodward-Clyde (W-C) indefinite delivery contract with the United States Army Corps of Engineers, Omaha District (USACE) (Contract No. DACW45-93-D-0005).

The objective of the quarterly groundwater sampling program is to provide additional information on groundwater quality for the NL Site. The first quarter groundwater sampling event consisted of sampling monitoring wells which had been previously sampled as part of the Pre-design Field Investigation (PDFI). The groundwater samples were analyzed for the Target Analyte List (TAL) metals. The analytical results and field observations for this sampling event are included in this report.

2.0 FIELD ACTIVITIES

2.1 SAMPLING PROCEDURES

The 1994 first quarter groundwater sampling event was conducted by W-C personnel on April 6 through 8, 1994. Sixteen of the 18 monitoring wells were purged and sampled. The sampling procedure for thirteen of the sixteen monitoring wells consisted of purging and sampling using a submersible electric pump. This sampling procedure was specified by the USEPA. On the other three wells purging and sampling had to be completed using a bailer. For wells MW-105S, MW-106S, and MW-108S, the monitoring wells had low water levels with slow recoveries and could not be pumped by the submersible pump. Unfiltered samples were collected from the sixteen wells. Additionally, field filtered samples using a 45 micron size filter were collected from 11 wells that had previously yielded results that were above the MCLs or action levels for one or more of the constituents on the TAL.

Twelve of the wells which were sampled were constructed of two-inch I.D. PVC screens and risers and ranged from 20 to 35 feet in depth. The other four wells which were sampled were constructed of two-inch I.D. stainless steel screens and risers and were approximately 70 feet deep. Two of the existing wells, MW-103 and MW-105D, which were previously bent and damaged could not be sampled. A well information summary for the 1994 first quarter sampling event is included in **Table 1.**

Prior to initiating any intrusive activities at a well site, each member of the sampling team was outfitted in the required personal protective equipment (PPE) specified in the project Site Safety and Health Plan (SSHP). The required PPE consisted of a polycoated Tyvek, latex undergloves, and neoprene outergloves. The well cover was unlocked or the flush-mount cover removed. The sampling team measured the water level and total depth of the well by using an electronic water level indicator. The indicator was decontaminated with deionized water as it was removed from the well casing. Conductivity and pH meters were calibrated with prepared standards before and after each sample was taken. All sampling equipment, including the stainless steel bailers was decontaminated prior to use. In accordance with

CDAP SOP No. 6, the decontamination procedure consisted of a wash in Alconox soap and water, a tap water rinse, an alcohol rinse and a final deionized water rinse. The submersible pump was also decontaminated in this manner before and after each use.

Wells MW-105S, MW-106S, and MW-108S could not be purged or sampled with the submersible electric pump due to low water levels and slow recoveries. Instead, a 1½ inch diameter stainless steel bailer was used to purge and sample the wells. A new length of clean nylon rope was attached to the bailer at each well. After purging five well volumes from each well, both filtered and unfiltered samples were collected and the appropriate sample jars were filled for metals analysis. The bailers were decontaminated in accordance with CDAP SOP No. 6. The protective well cover was closed and locked.

For the remaining thirteen wells that were sampled, a submersible electric pump was used instead of a bailer to purge the five well volumes. An electric generator was set up downwind from the well. A new length of nylon rope and Tygon tubing was attached to the pump assembly. This assembly was then lowered into the well after being connected to the pump power converter and generator. After the removal of five well volumes, the pumping rate was reduced to the minimum rate possible (approximately one liter/minute). Both unfiltered samples and, where required, filtered samples were collected, and the appropriate sample containers were filled. After the sampling was completed, the Tygon tubing, pump, and pump cable were removed from the well and decontaminated. The pump was placed in buckets containing Alconox soap, a tap water rinse, an alcohol rinse and a final deionized water rinse. Each of the decontamination solutions was circulated through the pump and all of the Tygon tubing prior to use at the next well. All purge water was placed in a 100 gallon wastewater tank to be disposed of on the Taracorp pile. The used rope and used PPE equipment were put into plastic trash bags for proper disposal.

If required, bottles for QA/QC were also filled. A separate jar was filled to measure field parameters (pH, conductivity, temperature, and water clarity). The sample jars were decontaminated, dried, and labeled as specified in CDAP SOP No. 5. Samples were then packed in iced coolers to be maintained at a temperature of 4 °C. Field sampling sheets were completed for each sample. Information on sampling sheets included the time of sampling, sampling team members initials, and required analysis.

At the end of each day of sampling, chain-of-custody forms were completed and the sample jars packed in iced coolers for shipment to Environmetrics Laboratory in St. Louis, Missouri. QA samples collected each day were packed in iced coolers and shipped to the USACE-MRD laboratory, via Federal Express priority overnight delivery.

2.2 LABORATORY METHODOLOGY AND QUALITY CONTROL

Both the filtered and unfiltered groundwater samples collected from the NL Site were analyzed for the TAL Metals. Samples were analyzed in accordance with the PDFI CDAP and USEPA SW-846 procedures and protocols. Groundwater and QC sample analyses were conducted by Environmetrics Laboratory in St. Louis, Missouri, in accordance with the appropriate SOPs and the laboratory's QAPP. QA sample analyses were conducted at the USACE-MRD Laboratory.

The quality control level of effort for the groundwater investigation consisted of collecting and submitting the following samples to Environmetrics:

- 3 Field duplicates
- 1 MS/MSD per batch (2 MS/MSDs were performed by Environmetrics)
- 2 Equipment rinsate blank

The quality assurance level of effort for the groundwater investigation consisted of collecting and submitting to USACE these samples:

- 3 Field duplicates
- 1 MS/MSD
- 1 Equipment rinsate blank

The quality control and quality assurance levels of effort are summarized in Table 2.

The analytical method specific Data Quality Objectives (DQO's) for groundwater samples collected from the NL Site included precision, accuracy, and sensitivity criteria. The QA objective was to achieve the QC acceptance criteria required by the analytical protocols in SW-846. The initial validation of laboratory data was performed by Environmetrics. W-C conducted an independent validation of the laboratory data packages. A summary of data validation results is presented with the attached analytical data in **Appendix A**. The Chemical Quality Assurance Report prepared by the MRD Laboratory which summarizes the quality assurance testing is included in **Appendix B**.

Corrective action was applied when any measurement system failed to follow the laboratory QAPP or CDAP Data Quality Objectives. The laboratory QA Supervisor reviewed the data generated to verify that all quality control samples were within the established control limits. Data generated with laboratory control samples that did not fall within control limits were considered suspect, and the sample analysis was repeated or samples results were reported with qualifiers if reanalysis was not possible.

Analytical data that was generated which fell within acceptable control limits were judged to be in control. Data generated which fell outside control limits are considered suspect and are reported with qualifiers. Data for all samples appear usable with minor qualifications necessary.

3.0 FIELD OBSERVATIONS

The depth to groundwater remained at approximately the same level that was measured during the previous sampling event which was conducted in September, 1993. This is attributed to the above normal rainfall in the area during the previous winter and spring. The higher groundwater levels allowed four shallow monitoring wells, MW-102, MW-105S, MW-106S, and MW-108S (average depth of 20 to 25 feet), to be sampled for the second consecutive event. During the sampling events conducted prior to September, 1993, as part of the PDFI, these wells have been dry and could not be sampled.

During this sampling event, the water in majority of the monitoring wells was generally clear. For three of the monitoring wells, MW-106S, MW-107S, and MW-108S the water appeared to be cloudy to very cloudy and brown in color with trace of fine sand. The poor water clarity was probably due to low water levels and slow recoveries.

The pH measurements for the wells sampled ranged from 6.1 to 7.7. Groundwater temperatures ranged from 11 to 19°C. Conductivities generally ranged from 930 to 2000 μmhos/cm, except for MW-104 and MW-108D. MW-104 and 108D both had significantly lower conductivities of 480 and 430 μmhos/cm, respectively. These field parameters were very similar to the parameters measured during the previous sampling events. A summary of field parameters measured during the sampling event is provided in Table 3.

4.0
ANALYTICAL RESULTS - METALS

Groundwater samples were analyzed for 13 metals of concern which included lead, arsenic, cadmium, chromium, and thallium and others. The analytical results for this sampling event are included in **Table 4** and historical results are included in **Table 5**. The laboratory data from this sampling event are included in **Appendix A**. Included in **Tables 4** and **5** are the maximum contaminant levels (MCLs) or action levels for each constituent promulgated under the Safe Drinking Water Act and the Illinois Groundwater Quality Standards for Class I: Potable Resource Groundwater.

For unfiltered samples, all metals of concern were detected in at least one sample collected from the monitoring wells (**Table 4**). Samples from four monitoring wells had total lead concentrations greater than the USEPA action level of 0.015 mg/L and the Illinois Class I groundwater lead standard of 0.0075 mg/L. The four wells with their respective measured lead concentrations were:

Monitoring Well	Total Lead Results (mg/L)
MW-104	0.019
MW-104-92	0.036
MW-106S	0.776
MW-108S	0.312

One additional well, MW-105S, had a total lead concentration of 0.008 mg/L, which is above the Illinois Class I groundwater standard of 0.0075 mg/L, but below the USEPA action level of 0.015 mg/L.

For filtered samples, cadmium, nickel, selenium, silver, thallium, and zinc were detected at concentrations above the detection limits in at least one sample collected during this sampling event.

The wells sampled during the event which had metal concentrations that were above either the respective MCLs or the respective Illinois Class I groundwater standards or both were MW-104, MW-104-92, MW-105S, MW-106S, MW-108S, and MW-108D (Table 4):

- MW-104: total cadmium and lead concentrations (unfiltered) above the respective MCLs and Illinois Class I standards.

- MW-104-92: total lead concentration (unfiltered) above the respective USEPA action level and Illinois Class I standards.

- MW-105S: total lead concentration (unfiltered) above the Illinois Class I standard.

- MW-106S: total arsenic, chromium, lead, mercury, and nickel concentrations (unfiltered) above the USEPA MCLs or action levels, and the Illinois Class I standards; total antimony, beryllium, and thallium concentrations (unfiltered) above the USEPA MCLs.

- MW-108S: total and dissolved cadmium and total lead concentrations above the USEPA MCLs or action levels, and the Illinois Class I standards; total antimony and total and dissolved thallium concentrations above the USEPA MCLs.

- MW-108D: total and dissolved cadmium and nickel concentrations above the USEPA MCLs or action levels, and the Illinois Class I standards; total and dissolved zinc concentrations above the Illinois Class I standards; total and dissolved thallium concentrations above the USEPA MCL.

Monitoring wells located upgradient of the Taracorp pile, MW-110 and MW-111-92, did not detect any metals above the reporting limits. Quality control samples consisting of field duplicates were taken from MW-108D and MW-111-92. Constituent metal concentration levels for both duplicate samples were representative of the respective groundwater sample

(Table 4). No metal concentrations were detected above the reporting limits for the rinsate samples, MW-112 and MW-113.

The analytical results from each well for this sampling event were fairly consistent with the previous sampling events (Table 5). The differences in sample concentrations from one sampling event to the other may depend on various parameters including (1) sampling methods, (2) water level fluctuations, (3) soil permeability, (4) soil heterogeneity, and (5) dispersion and adsorption properties of the surrounding soils.

Starting January 17, 1994, promulgated under the Safe Drinking Water Act (Federal Register, 57 FR 31838), new MCLs became effective for three metals of concern at the NL Site. The three metals and their respective MCLs are antimony at 0.006 mg/L, beryllium at 0.004 mg/L, and thallium at 0.002 mg/L.

TABLES

TABLE 1
WELL INFORMATION
First Quarter 1994 Groundwater Sampling Event
NL/Taracorp Superfund Site

WELL NUMBER	MEASURED TOTAL DEPTH (FEET)	WELL DIAM. (IN.)	SCREEN INTERVAL (FEET)	SCREEN MATERIAL	RISER ELEV. (MSL)	WATER LEVEL (FEET)	WATER ELEVATION (FEET)	WELL VOLUME (GALS.)	PURGE VOLUME (GALS.)
101	26.2	2	15–25	PVC	421.45	18.45	403.00	1.3	6.3
102	24.45	2	15–25	PVC	416.58	15.20	401.38	1.5	7.5
103	BENT RISER	2	15–25	PVC	417.17	NA			
103–91	73.05	2	58.71–68.71	SS	416.89	12.60	404.29	9.9	49.3
104	28.68	2	17–27	PVC	422.25	19.92	402.33	1.4	7.1
104–92	68.35	2	58.12–68.12	SS	418.25	15.42	402.83	8.6	43.2
105S	28.95	2	21–26	PVC	428.66	26.75	401.91	0.4	1.8
105D	BENT RISER	2	30.3–35.3	PVC	428.74	26.80	401.94		
106S	22.75	2	15.79–20.79	PVC	423.71	21.75	401.96	0.2	0.8
106D	37.43	2	29.91–34.91	PVC	423.79	20.63	403.16	2.7	13.7
107S	25.50	2	17.46–22.46	PVC	420.78	16.82	403.96	1.4	7.1
107D	38.00	2	30.44–35.44	PVC	421.65	19.80	401.85	3.0	14.9
108S	23.4	2	15.4–20.4	PVC	421.71	20.30	401.41	0.5	2.5
108D	33.65	2	27.26–32.26	PVC	422.71	19.93	402.78	2.2	11.2
109	32.67	2	29–34	PVC	416.64	12.25	404.39	3.3	16.7
109–92	69.1	2	59.26–69.26	SS	415.71	13.30	402.41	9.1	45.5
110	33.94	2	30–35	PVC	418.49	16.65	401.84	2.8	14.1
111–92	67.7	2	57.64–67.64	SS	419.40	18.00	401.40	8.1	40.6

TABLE 2
GROUNDWATER SAMPLING SUMMARY
First Quarter 1994 Groundwater Sampling Event
NL/Taracorp Superfund Site

		QUALITY ASSURANCE			QUALITY CONTROL		
WELL NUMBER	FIELD SAMPLES *	FIELD DUPLICATE*	MS/MSD	RINSATE BLANKS	FIELD DUPLICATE*	MS/MSD**	RINSATE BLANKS
101	2						
102	2						
103-91	1						
104	2	1					
104-92	2	2	1 / 1				
105S	2						
106S	2						
106D	2					1 / 1	
107S	2						
107D	2				2		
108S	2						
108D	2						
109	1						
109-92	1						
110	1					1 / 1	
111-92	1				1		
112				1			1
113							1
Total	27	3	1 / 1	1	3	2 / 2	2
Frequency (%)		11	4 / 4	4	11	7 / 7	7

* Where two field samples or field duplicates are noted, both a field filtered and nonfiltered sample were collected.

** Matrix Spike (MS)/ Matrix Spike Duplicate (MSD) samples were analyzed at a frequency of one sample per laboratory batch.

TABLE 3
FIELD PARAMETERS
First Quarter 1994 Groundwater Sampling Event
NL/Taracorp Superfund Site

WELL ID	SAMPLING DATE	pH	CONDUCTIVITY (μmhos/cm)	TEMP. (°C)	WATER CLARITY
MW-101	07-Apr-94	7.22	1531	17.5	Clear to Partially Cloudy
MW-102	07-Apr-94	7.11	1092	16.0	Clear
MW-103-91	06-Apr-94	7.60	1517	14.8	Clear
MW-104	07-Apr-94	6.20	478	16.4	Slightly Cloudy
MW-104-92	07-Apr-94	6.51	1395	17.5	Clear
MW-105S	08-Apr-94	7.74	1481	13.0	Clear to Slightly Cloudy
MW-106S	08-Apr-94	6.72	1449	17.4	Very Cloudy; Yellowish-brown
MW-106D	08-Apr-94	6.85	973	18.1	Clear
MW-107S	08-Apr-94	7.45	933	15.5	Partially Cloudy w/ trace of sand fines
MW-107D	08-Apr-94	7.29	1075	19.0	Clear
MW-108S	07-Apr-94	6.08	2000	19.0	Lt. Brown w/ trace of sand fines, Cloudy
MW-108D	07-Apr-94	6.95	426	17.2	Clear to Slightly Cloudy
MW-109	06-Apr-94	7.60	1456	13.0	Clear
MW-109-92	06-Apr-94	6.30	1359	11.1	Clear
MW-110	06-Apr-94	7.66	1460	11.6	Clear
MW-111-92	07-Apr-94	7.65	1305	15.1	Clear

NOTE: Water parameters were measured with a Corning Checkmate meter.

TABLE 4
METALS RESULTS OF FIRST QUARTER 1994
GROUNDWATER SAMPLING EVENT
NL/TARACORP SUPERFUND SITE

Parameter	Unit	MCLs (mg/L)	ILLINOIS CLASS I STANDARDS (mg/L)	MW-101	MW-102	MW-103-91	MW-104	MW-104-92
Antimony	mg/l	0.006	–	<0.006	<0.006	<0.006	<0.006	<0.006
Antimony, filtered	mg/l	0.006	–	<0.006	<0.006		<0.006	<0.006
Arsenic	mg/l	0.05	0.05	0.017	<0.010	<0.010	<0.010	<0.010
Arsenic, filtered	mg/l	0.05	0.05	<0.010	<0.010		<0.010	<0.010
Beryllium	mg/l	0.004	–	<0.004	<0.004	<0.004	<0.004	<0.004
Beryllium, filtered	mg/l	0,004	–	<0.004	<0.004		<0.004	<0.004
Cadmium	mg/l	0.005	0.005	<0.005	<0.005	0.005	0.006 (3)	<0.005
Cadmium, filtered	mg/l	0.005	0.005	<0.005	<0.005		<0.005	<0.005
Chromium	mg/l	0.1	0.1	<0.010	<0.010	<0.010	<0.010	<0.010
Chromium, filtered	mg/l	0.1	0.1	<0.010	<0.010		<0.010	<0.010
Copper	mg/l	1.3*	0.65	0.072	<0.025	<0.025	<0.025	<0.025
Copper, filtered	mg/l	1.3*	0.65	<0.025	<0.025		<0.025	<0.025
Lead	mg/l	0.015*	0.0075	<0.003	<0.003	<0.003	0.019(3)	0.036(3)
Lead, filtered	mg/l	0.015*	0.0075	<0.003	<0.003		<0.003	<0.003
Mercury	mg/l	0.002	0.002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Mercury, filtered	mg/l	0.002	0.002	<0.0002	<0.0002		<0.0002	<0.0002
Nickel	mg/l	0.1	0.1	<0.040	<0.040	<0.040	<0.040	<0.040
Nickel, filtered	mg/l	0.1	0.1	<0.040	<0.040		<0.040	<0.040
Selenium	mg/l	0.05	0.05	<0.005	<0.005	<0.005	<0.005	<0.005
Selenium, filtered	mg/l	0.05	0.05	<0.005	<0.005		<0.005	<0.005
Silver	mg/l	–	0.05	<0.010	<0.010	0.012	<0.010	<0.010
Silver, filtered	mg/l	–	0.05	0.01	<0.010		<0.010	<0.010
Thallium	mg/l	0.002	–	<0.002	<0.002	<0.002	<0.002	<0.002
Thallium, filtered	mg/l	0.002	–	<0.002	<0.002		<0.002	<0.002
Zinc	mg/l	–	5.0	0.052	<0.020	<0.020	<0.020	<0.020
Zinc, filtered	mg/l	–	5.0	<0.020	<0.020		<0.020	<0.020

J – The associated numerical value is an estimated quantity.
* – Action Level that triggers treatment.
(1) – Sample concentration is above the MCL or action level.
(2) – Sample concentration is above the Illinois Groundwater Quality Standard for a Class I Potable Resource.
(3) – Sample concentrations is above both the MCL and the Class I Groundwater Quality Standard.

TABLE 4
METALS RESULTS OF FIRST QUARTER 1994
GROUNDWATER SAMPLING EVENT
NL/TARACORP SUPERFUND SITE

Parameter	Unit	MCLs (mg/L)	ILLINOIS CLASS I STANDARDS (mg/L)	MW-105S	MW-106S	MW-106D	MW-107S	MW-107D
Antimony	mg/l	0.006	–	<0.006	0.008 (1)	<0.006	<0.006	<0.006
Antimony, filtered	mg/l	0.006	–	<0.006	<0.006	<0.006	<0.006	<0.006
Arsenic	mg/l	0.05	0.05	<0.010	0.081 (3)	<0.010	<0.010	<0.010
Arsenic, filtered	mg/l	0.05	0.05	<0.010	<0.010	<0.010	<0.010	<0.010
Beryllium	mg/l	0.004	–	<0.004	0.007 (1)	<0.004	<0.004	<0.004
Beryllium, filtered	mg/l	0.004	–	<0.004	<0.004	<0.004	<0.004	<0.004
Cadmium	mg/l	0.005	0.005	<0.005	0.005	<0.005	<0.005	<0.005
Cadmium, filtered	mg/l	0.005	0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chromium	mg/l	0.1	0.1	<0.010	0.183 (3)	<0.010	0.017	<0.010
Chromium, filtered	mg/l	0.1	0.1	<0.010	<0.010	<0.010	<0.010	<0.010
Copper	mg/l	1.3*	0.65	<0.025	0.179	<0.025	<0.025	<0.025
Copper, filtered	mg/l	1.3*	0.65	<0.025	<0.025	<0.025	<0.025	<0.025
Lead	mg/l	0.015*	0.0075	0.008 (2)	0.776 (3)	<0.003	0.007	<0.003
Lead, filtered	mg/l	0.015*	0.0075	<0.003	<0.003	<0.003	<0.003	<0.003
Mercury	mg/l	0.002	0.002	<0.0002	0.0006 (3)	<0.0002	<0.0002	<0.0002
Mercury, filtered	mg/l	0.002	0.002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Nickel	mg/l	0.1	0.1	<0.040	0.22 (3)	<0.040	<0.040	<0.040
Nickel, filtered	mg/l	0.1	0.1	<0.040	<0.040	<0.040	<0.040	<0.040
Selenium	mg/l	0.05	0.05	0.011	<0.005	0.005 J	<0.005	<0.005
Selenium, filtered	mg/l	0.05	0.05	0.014	<0.005	0.006	<0.005	<0.005
Silver	mg/l	–	0.05	<0.010	<0.010	<0.010	<0.010	<0.010
Silver, filtered	mg/l	–	0.05	<0.010	<0.010	<0.010	<0.010	<0.010
Thallium	mg/l	0.002	–	<0.002	0.003 (1)	<0.002	<0.002	<0.002
Thallium, filtered	mg/l	0.002	–	<0.002	<0.002	<0.002	<0.002	<0.002
Zinc	mg/l	–	5.0	<0.020	0.876	0.026	0.041	<0.020
Zinc, filtered	mg/l	–	5.0	<0.020	<0.020	<0.020	<0.020	<0.020

J – The associated numerical value is an estimated quantity.
* – Action Level that triggers treatment.
(1) – Sample concentration is above the MCL or action level.
(2) – Sample concentration is above the Illinois Groundwater Quality Standard for a Class I Potable Resource.
(3) – Sample concentrations is above both the MCL and the Class I Groundwater Quality Standard.

TABLE 4
METALS RESULTS OF FIRST QUARTER 1994
GROUNDWATER SAMPLING EVENT
NL/TARACORP SUPERFUND SITE

Parameter	Unit	MCLs (mg/L)	ILLINOIS CLASS I STANDARDS (mg/L)	MW-107D QC FIELD DUPLICATE	MW-108S	MW-108D	MW-109	MW-109-92
Antimony	mg/l	0.006	–	<0.006	0.007 (1)	<0.006	<0.006	<0.006
Antimony, filtered	mg/l	0.006	–	<0.006	<0.006	<0.006		
Arsenic	mg/l	0.05	0.05	<0.010	0.017	<0.010	<0.010	<0.010
Arsenic, filtered	mg/l	0.05	0.05	<0.010	<0.010	<0.010		
Beryllium	mg/l	0.004	–	<0.004	<0.004	<0.004	<0.004	<0.004
Beryllium, filtered	mg/l	0.004	–	<0.004	<0.004	<0.004		
Cadmium	mg/l	0.005	0.005	<0.005	0.180 (3)	5.41 (3)	<0.005	<0.005
Cadmium, filtered	mg/l	0.005	0.005	<0.005	0.144 (3)	5.08 (3)		
Chromium	mg/l	0.1	0.1	<0.010	0.043	<0.010	<0.010	0.011
Chromium, filtered	mg/l	0.1	0.1	<0.010	<0.010	<0.010		
Copper	mg/l	1.3*	0.65	<0.025	0.039	<0.025	<0.025	<0.025
Copper, filtered	mg/l	1.3*	0.65	<0.025	<0.025	<0.025		
Lead	mg/l	0.015*	0.0075	<0.003	0.312 (3)	<0.003	<0.003	<0.003
Lead, filtered	mg/l	0.015*	0.0075	<0.003	<0.003	<0.003		
Mercury	mg/l	0.002	0.002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Mercury, filtered	mg/l	0.002	0.002	<0.0002	<0.0002	<0.0002		
Nickel	mg/l	0.1	0.1	<0.040	0.075	0.435 (3)	<0.040	<0.040
Nickel, filtered	mg/l	0.1	0.1	<0.040	<0.040	0.396 (3)		
Selenium	mg/l	0.05	0.05	<0.005	<0.005	<0.005	<0.005	<0.005
Selenium, filtered	mg/l	0.05	0.05	<0.005	<0.005	<0.005		
Silver	mg/l	–	0.05	<0.010	<0.010	0.012	<0.010	<0.010
Silver, filtered	mg/l	–	0.05	<0.010	<0.010	<0.010		
Thallium	mg/l	0.002	–	<0.002	0.008 (1)	0.045 (1)	<0.002	<0.002
Thallium, filtered	mg/l	0.002	–	<0.002	0.003 (1)	0.043 (1)		
Zinc	mg/l	–	5.0	<0.020	0.177	23.1 (2)	<0.020	<0.020
Zinc, filtered	mg/l	–	5.0	<0.020	0.028	21.5 (2)		

J – The associated numerical value is an estimated quantity.
* – Action Level that triggers treatment.
(1) – Sample concentration is above the MCL or action level.
(2) – Sample concentration is above the Illinois Groundwater Quality Standard for a Class I Potable Resource.
(3) – Sample concentrations is above both the MCL and the Class I Groundwater Quality Standard.

TABLE 4
METALS RESULTS OF FIRST QUARTER 1994
GROUNDWATER SAMPLING EVENT
NL/TARACORP SUPERFUND SITE

Parameter	Unit	MCLs (mg/L)	ILLINOIS CLASS I STANDARDS (mg/L)	MW-110	MW-111-92	MW-111-92 QC FIELD DUPLICATE	MW-112 QC RINSATE BLANK	MW-113 QC RINSATE BLANK
Antimony	mg/l	0.006	–	<0.006	<0.006	<0.006	<0.006	<0.006
Antimony, filtered	mg/l	0.006	–					
Arsenic	mg/l	0.05	0.05	<0.010	<0.010	<0.010	<0.010	<0.010
Arsenic, filtered	mg/l	0.05	0.05					
Beryllium	mg/l	0.004	–	<0.004	<0.004	<0.004	<0.004	<0.004
Beryllium, filtered	mg/l	0.004	–					
Cadmium	mg/l	0.005	0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cadmium, filtered	mg/l	0.005	0.005					
Chromium	mg/l	0.1	0.1	<0.010	<0.010	<0.010	<0.010	<0.010
Chromium, filtered	mg/l	0.1	0.1					
Copper	mg/l	1.3*	0.65	<0.025	<0.025	<0.025	<0.025	<0.025
Copper, filtered	mg/l	1.3*	0.65					
Lead	mg/l	0.015*	0.0075	<0.003	<0.003	<0.003	<0.003	<0.003
Lead, filtered	mg/l	0.015*	0.0075					
Mercury	mg/l	0.002	0.002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Mercury, filtered	mg/l	0.002	0.002					
Nickel	mg/l	0.1	0.1	<0.040	<0.040	<0.040	<0.040	<0.040
Nickel, filtered	mg/l	0.1	0.1					
Selenium	mg/l	0.05	0.05	<0.005 J	<0.005	<0.005	<0.005	<0.005
Selenium, filtered	mg/l	0.05	0.05					
Silver	mg/l	–	0.05	<0.010	<0.010	<0.010	<0.010	<0.010
Silver, filtered	mg/l	–	0.05					
Thallium	mg/l	0.002	–	<0.002	<0.002	<0.002	<0.002	<0.002
Thallium, filtered	mg/l	0.002	–					
Zinc	mg/l	–	5.0	<0.020	<0.020	<0.020	<0.020	<0.020
Zinc, filtered	mg/l	–	5.0					

J – The associated numerical value is an estimated quantity.
* – Action Level that triggers treatment.
(1) – Sample concentration is above the MCL or action level.
(2) – Sample concentration is above the Illinois Groundwater Quality Standard for a Class I Potable Resource.
(3) – Sample concentrations is above both the MCL and the Class I Groundwater Quality Standard.

Table 5: Metals Results of Historical Groundwater Sampling Events NL/Taracorp Superfund Site

Parameter	Unit	MCLs (mg/L)	ILLINOIS CLASS I STANDARDS (mg/L)	MW-101 JULY 1992	OCTOBER 1992	MARCH 1993	SEPTEMBER 1993	APRIL 1994
Antimony	mg/l	0.006	–	0.014 (1)	<0.011	<0.060	<0.050	<0.006
Antimony, filtered	mg/l	0.006	–					<0.006
Arsenic	mg/l	0.05	0.05	4.2 (3)	0.77 (3)	0.46 (3)	0.181 (3)	0.017
Arsenic, filtered	mg/l	0.05	0.05					<0.010
Beryllium	mg/l	0.004	–	0.0026	<0.0006	0.0006	<0.005	<0.004
Beryllium, filtered	mg/l	0.004	–					<0.004
Cadmium	mg/l	0.005	0.005	0.0039	0.0053 (3)	<0.005	0.006 (3)	<0.005
Cadmium, filtered	mg/l	0.005	0.005					<0.005
Chromium	mg/l	0.1	0.1	0.034	0.018 U	0.077	0.047	<0.010
Chromium, filtered	mg/l	0.1	0.1					<0.010
Copper	mg/l	1.3*	0.65	0.06	0.017	0.039	0.063	0.072
Copper, filtered	mg/l	1.3*	0.65					<0.025
Lead	mg/l	0.015*	0.0075	0.130 (3)	0.023 (3)	0.027 (3)	0.077 (3)	<0.003
Lead, filtered	mg/l	0.015*	0.0075					<0.003
Mercury	mg/l	0.002	0.002	0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Mercury, filtered	mg/l	0.002	0.002					<0.0002
Nickel	mg/l	0.1	0.1	0.13 (3)	0.027	0.077	0.072	<0.040
Nickel, filtered	mg/l	0.1	0.1					<0.040
Selenium	mg/l	0.05	0.05	<0.003	<0.003	<0.003	0.007	<0.005
Selenium, filtered	mg/l	0.05	0.05					<0.005
Silver	mg/l	–	0.05	<0.0004	<0.009	<0.009	<0.010	<0.010
Silver, filtered	mg/l	–	0.05					0.01
Thallium	mg/l	0.002	–	<0.002	<0.002	<0.002	<0.050	<0.002
Thallium, filtered	mg/l	0.002	–					<0.002
Zinc	mg/l	–	5.0	0.35	0.098	0.11	0.199	0.052
Zinc, filtered	mg/l	–	5.0					<0.020

U – The compound was analyzed for but was not detected. The associated numerical value is attributed to contamination and is considered to be the sample quantitation limit.

J – The associated numerical value is an estimated quantity.

* – Action Level that triggers treatment.

(1) – Sample concentration is above the MCL.

(2) – Sample concentration is above the Illinois Groundwater Quality Standard for a Class I Potable Resource.

(3) – Sample Concentration is above both the MCL and the Illinois Class I Groundwater Quality Standard.

Table 5: (cont'd)

Parameter	Unit	MCLs (mg/L)	ILLINOIS CLASS I STANDARDS (mg/L)	MW-102 SEPTEMBER 1993	MW-102 APRIL 1994
Antimony	mg/l	0.006	–	<0.050	<0.006
Antimony, filtered	mg/l	0.006	–		<0.006
Arsenic	mg/l	0.05	0.05	0.015	<0.010
Arsenic, filtered	mg/l	0.05	0.05		<0.010
Beryllium	mg/l	0.004	–	<0.005	<0.004
Beryllium, filtered	mg/l	0.004	–		<0.004
Cadmium	mg/l	0.005	0.005	<0.005	<0.005
Cadmium, filtered	mg/l	0.005	0.005		<0.005
Chromium	mg/l	0.1	0.1	0.027	<0.010
Chromium, filtered	mg/l	0.1	0.1		<0.010
Copper	mg/l	1.3*	0.65	0.028	<0.025
Copper, filtered	mg/l	1.3*	0.65		<0.025
Lead	mg/l	0.015*	0.0075	0.136 (3)	<0.003
Lead, filtered	mg/l	0.015*	0.0075		<0.003
Mercury	mg/l	0.002	0.002	<0.0002	<0.0002
Mercury, filtered	mg/l	0.002	0.002		<0.0002
Nickel	mg/l	0.1	0.1	0.062	<0.040
Nickel, filtered	mg/l	0.1	0.1		<0.040
Selenium	mg/l	0.05	0.05	0.015	<0.005
Selenium, filtered	mg/l	0.05	0.05		<0.005
Silver	mg/l	–	0.05	<0.010	<0.010
Silver, filtered	mg/l	–	0.05		<0.010
Thallium	mg/l	0.002	–	<0.050	<0.002
Thallium, filtered	mg/l	0.002	–		<0.002
Zinc	mg/l	–	5.0	0.123	<0.020
Zinc, filtered	mg/l	–	5.0		<0.020

U – The compound was analyzed for but was not detected. The associated numerical value is attributed to contamination and is considered to be the sample quantitation limit.

J – The associated numerical value is an estimated quantity.

* – Action Level that triggers treatment.

(1) – Sample concentration is above the MCL.

(2) – Sample concentration is above the Illinois Groundwater Quality Standard for a Class I Potable Resource.

(3) – Sample Concentration is above both the MCL and the Illinois Class I Groundwater Quality Standard.

Table 5: Metals Results of Historical Groundwater Sampling Events NL/Taracorp Superfund Site

Parameter	Unit	MCLs (mg/L)	ILLINOIS CLASS I STANDARDS (mg/L)	MW-103-91 JULY 1992	MW-103-91 OCTOBER 1992	MW-103-91 MARCH 1993	MW-103-91 SEPTEMBER 1993	MW-103-91 APRIL 1994
Antimony	mg/l	0.006	–	<0.002	0.014 (1)	<0.060	<0.050	<0.006
Antimony, filtered	mg/l	0.006	–					
Arsenic	mg/l	0.05	0.05	<0.003	<0.003	<0.003	<0.010	<0.010
Arsenic, filtered	mg/l	0.05	0.05					
Beryllium	mg/l	0.004	–	<0.0006	<0.0006	<0.0006	<0.005	<0.004
Beryllium, filtered	mg/l	0.004	–					
Cadmium	mg/l	0.005	0.005	0.0017	<0.005	<0.005	<0.005	0.005
Cadmium, filtered	mg/l	0.005	0.005					
Chromium	mg/l	0.1	0.1	<0.002	0.029 U	<0.013	<0.010	<0.010
Chromium, filtered	mg/l	0.1	0.1					
Copper	mg/l	1.3*	0.65	<0.014	<0.014	<0.014	<0.025	<0.025
Copper, filtered	mg/l	1.3*	0.65					
Lead	mg/l	0.015*	0.0075	0.0027	0.0038	<0.002	<0.003	<0.003
Lead, filtered	mg/l	0.015*	0.0075					
Mercury	mg/l	0.002	0.002	0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Mercury, filtered	mg/l	0.002	0.002					
Nickel	mg/l	0.1	0.1	<0.023	<0.023	<0.023	<0.040	<0.040
Nickel, filtered	mg/l	0.1	0.1					
Selenium	mg/l	0.05	0.05	<0.003	<0.003	<0.003	<0.005	<0.005
Selenium, filtered	mg/l	0.05	0.05					
Silver	mg/l	–	0.05	<0.0004	<0.009	<0.009	<0.010	0.012
Silver, filtered	mg/l	–	0.05					
Thallium	mg/l	0.002	–	<0.002	<0.002	<0.002	<0.050	<0.002
Thallium, filtered	mg/l	0.002	–					
Zinc	mg/l	–	5.0	0.036	0.074 J	<0.020	<0.020	<0.020
Zinc, filtered	mg/l	–	5.0					

U – The compound was analyzed for but was not detected. The associated numerical value is attributed to contamination and is considered to be the sample quantitation limit.

J – The associated numerical value is an estimated quantity.

* – Action Level that triggers treatment.

(1) – Sample concentration is above the MCL.

(2) – Sample concentration is above the Illinois Groundwater Quality Standard for a Class I Potable Resource.

(3) – Sample Concentration is above both the MCL and the Illinois Class I Groundwater Quality Standard.

Table 5: Metals Results of Historical Groundwater Sampling Events NL/Taracorp Superfund Site

Parameter	Unit	MCLs (mg/L)	ILLINOIS CLASS I STANDARDS (mg/L)	MW-104 JULY 1992	MW-104 OCTOBER 1992	MW-104 MARCH 1993	MW-104 SEPTEMBER 1993	MW-104 APRIL 1994
Antimony	mg/l	0.006	–	0.023 (1)	0.013 (1)	<0.060	<0.050	<0.006
Antimony, filtered	mg/l	0.006	–					<0.006
Arsenic	mg/l	0.05	0.05	0.086 (3)	0.087 (3)	0.0046	0.018	<0.010
Arsenic, filtered	mg/l	0.05	0.05					<0.010
Beryllium	mg/l	0.004	–	0.0019	0.00322	<0.0006	<0.005	<0.004
Beryllium, filtered	mg/l	0.004	–					<0.004
Cadmium	mg/l	0.005	0.005	0.0027	<0.005	<0.005	0.005 (3)	0.006 (3)
Cadmium, filtered	mg/l	0.005	0.005					<0.005
Chromium	mg/l	0.1	0.1	0.047	0.098 J	<0.013	0.035	<0.010
Chromium, filtered	mg/l	0.1	0.1					<0.010
Copper	mg/l	1.3*	0.65	0.064	0.097	<0.014	<0.025	<0.025
Copper, filtered	mg/l	1.3*	0.65					<0.025
Lead	mg/l	0.015*	0.0075	0.47 (3)	0.42 (3)	0.013 (2)	0.043 (3)	0.019(3)
Lead, filtered	mg/l	0.015*	0.0075					<0.003
Mercury	mg/l	0.002	0.002	0.0003	0.0005	<0.0002	<0.0002	<0.0002
Mercury, filtered	mg/l	0.002	0.002					<0.0002
Nickel	mg/l	0.1	0.1	0.12 (3)	0.19 (3)	<0.023	0.047	<0.040
Nickel, filtered	mg/l	0.1	0.1					<0.040
Selenium	mg/l	0.05	0.05	<0.003	<0.003	<0.003	<0.005	<0.005
Selenium, filtered	mg/l	0.05	0.05					<0.005
Silver	mg/l	–	0.05	<0.0004	<0.009	<0.009	<0.010	<0.010
Silver, filtered	mg/l	–	0.05					<0.010
Thallium	mg/l	0.002	–	<0.002	<0.002	<0.002	<0.050	<0.002
Thallium, filtered	mg/l	0.002	–					<0.002
Zinc	mg/l	–	5.0	0.24	0.38 J	<0.020	0.072	<0.020
Zinc, filtered	mg/l	–	5.0					<0.020

U – The compound was analyzed for but was not detected. The associated numerical value is attributed to contamination and is considered to be the sample quantitation limit.

J – The associated numerical value is an estimated quantity.

* – Action Level that triggers treatment.

(1) – Sample concentration is above the MCL.

(2) – Sample concentration is above the Illinois Groundwater Quality Standard for a Class I Potable Resource.

(3) – Sample Concentration is above both the MCL and the Illinois Class I Groundwater Quality Standard.

Table 5: Metals Results of Historical Groundwater Sampling Events NL/Taracorp Superfund Site

Parameter	Unit	MCLs (mg/L)	ILLINOIS CLASS I STANDARDS (mg/L)	MW-104-92 JULY 1992	OCTOBER 1992	MARCH 1993	SEPTEMBER 1993	APRIL 1994
Antimony	mg/l	0.006	–	0.007 (1)	0.01 (1)	<0.060	<0.050	<0.006
Antimony, filtered	mg/l	0.006	–					<0.006
Arsenic	mg/l	0.05	0.05	0.0088	0.0032	<0.003	<0.010	<0.010
Arsenic, filtered	mg/l	0.05	0.05					<0.010
Beryllium	mg/l	0.004	–	<0.0006	<0.0006	<0.0006	<0.005	<0.004
Beryllium, filtered	mg/l	0.004	–					<0.004
Cadmium	mg/l	0.005	0.005	0.0033	<0.005	<0.005	0.005 (3)	<0.005
Cadmium, filtered	mg/l	0.005	0.005					<0.005
Chromium	mg/l	0.1	0.1	0.002	0.034 J	<0.013	<0.010	<0.010
Chromium, filtered	mg/l	0.1	0.1					<0.010
Copper	mg/l	1.3*	0.65	<0.014	<0.014	<0.014	<0.025	<0.025
Copper, filtered	mg/l	1.3*	0.65					<0.025
Lead	mg/l	0.015*	0.0075	0.44 (3)	0.27 (3)	0.043 (3)	0.520/0.480 (3)	0.036(3)
Lead, filtered	mg/l	0.015*	0.0075					<0.003
Mercury	mg/l	0.002	0.002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Mercury, filtered	mg/l	0.002	0.002					<0.0002
Nickel	mg/l	0.1	0.1	<0.023	<0.023	<0.023	<0.040	<0.040
Nickel, filtered	mg/l	0.1	0.1					<0.040
Selenium	mg/l	0.05	0.05	<0.003	<0.003	<0.003	<0.005	<0.005
Selenium, filtered	mg/l	0.05	0.05					<0.005
Silver	mg/l	–	0.05	<0.0004	<0.009	<0.009	<0.010	<0.010
Silver, filtered	mg/l	–	0.05					<0.010
Thallium	mg/l	0.002	–	<0.002	<0.002	<0.002	<0.050	<0.002
Thallium, filtered	mg/l	0.002	–					<0.002
Zinc	mg/l	–	5.0	0.082	0.066 J	<0.020	0.037	<0.020
Zinc, filtered	mg/l	–	5.0					<0.020

U – The compound was analyzed for but was not detected. The associated numerical value is attributed to contamination and is considered to be the sample quantitation limit.

J – The associated numerical value is an estimated quantity.

* – Action Level that triggers treatment.

(1) – Sample concentration is above the MCL.

(2) – Sample concentration is above the Illinois Groundwater Quality Standard for a Class I Potable Resource.

(3) – Sample Concentration is above both the MCL and the Illinois Class I Groundwater Quality Standard.

Table 5: Metals Results of Historical Groundwater Sampling Events NL/Taracorp Superfund Site

Parameter	Unit	MCLs (mg/L)	ILLINOIS CLASS I STANDARDS (mg/L)	MW-105S SEPTEMBER 1993	MW-105S APRIL 1994	MW-106S SEPTEMBER 1993	MW-106S APRIL 1994
Antimony	mg/l	0.006	–	<0.050	<0.006	<0.050	0.008 (1)
Antimony, filtered	mg/l	0.006	–		<0.006		<0.006
Arsenic	mg/l	0.05	0.05	<0.010	<0.010	0.014	0.081 (3)
Arsenic, filtered	mg/l	0.05	0.05		<0.010		<0.010
Beryllium	mg/l	0.004	–	<0.005	<0.004	<0.005	0.007 (1)
Beryllium, filtered	mg/l	0.004	–		<0.004		<0.004
Cadmium	mg/l	0.005	0.005	<0.005	<0.005	<0.005	0.005
Cadmium, filtered	mg/l	0.005	0.005		<0.005		<0.005
Chromium	mg/l	0.1	0.1	0.029	<0.010	0.476 (3)	0.183 (3)
Chromium, filtered	mg/l	0.1	0.1		<0.010		<0.010
Copper	mg/l	1.3*	0.65	<0.025	<0.025	0.056	0.179
Copper, filtered	mg/l	1.3*	0.65		<0.025		<0.025
Lead	mg/l	0.015*	0.0075	0.015 (3)	0.008 (2)	0.143 (3)	0.776 (3)
Lead, filtered	mg/l	0.015*	0.0075		<0.003		<0.003
Mercury	mg/l	0.002	0.002	<0.0002	<0.0002	<0.0002	0.0006 (3)
Mercury, filtered	mg/l	0.002	0.002		<0.0002		<0.0002
Nickel	mg/l	0.1	0.1	<0.040	<0.040	0.366 (3)	0.22 (3)
Nickel, filtered	mg/l	0.1	0.1		<0.040		<0.040
Selenium	mg/l	0.05	0.05	0.016	0.011	0.011	<0.005
Selenium, filtered	mg/l	0.05	0.05		0.014		<0.005
Silver	mg/l	–	0.05	<0.010	<0.010	<0.010	<0.010
Silver, filtered	mg/l	–	0.05		<0.010		<0.010
Thallium	mg/l	0.002	–	<0.050	<0.002	<0.050	0.003 (1)
Thallium, filtered	mg/l	0.002	–		<0.002		<0.002
Zinc	mg/l	–	5.0	0.039	<0.020	0.181	0.876
Zinc, filtered	mg/l	–	5.0		<0.020		<0.020

U – The compound was analyzed for but was not detected. The associated numerical value is attributed to contamination and is considered to be the sample quantitation limit.

J – The associated numerical value is an estimated quantity.

* – Action Level that triggers treatment.

(1) – Sample concentration is above the MCL.

(2) – Sample concentration is above the Illinois Groundwater Quality Standard for a Class I Potable Resource.

(3) – Sample Concentration is above both the MCL and the Illinois Class I Groundwater Quality Standard.

Table 5: Metals Results of Historical Groundwater Sampling Events NL/Taracorp Superfund Site

Parameter	Unit	MCLs (mg/L)	ILLINOIS CLASS I STANDARDS (mg/L)	MW-106D JULY 1992	OCTOBER 1992	MARCH 1993	SEPTEMBER 1993	APRIL 1994
Antimony	mg/l	0.006	–	0.003	<0.011	<0.060	<0.050	<0.006
Antimony, filtered	mg/l	0.006	–					<0.006
Arsenic	mg/l	0.05	0.05	0.013	0.0032	<0.003	<0.010	<0.010
Arsenic, filtered	mg/l	0.05	0.05					<0.010
Beryllium	mg/l	0.004	–	<0.0006	<0.0006	<0.0006	<0.005	<0.004
Beryllium, filtered	mg/l	0.004	–					<0.004
Cadmium	mg/l	0.005	0.005	0.0005	<0.005	<0.005	<0.005	<0.005
Cadmium, filtered	mg/l	0.005	0.005					<0.005
Chromium	mg/l	0.1	0.1	<0.002	0.015 U	<0.013	0.019	<0.010
Chromium, filtered	mg/l	0.1	0.1					<0.010
Copper	mg/l	1.3*	0.65	<0.014	<0.014	<0.014	<0.025	<0.025
Copper, filtered	mg/l	1.3*	0.65					<0.025
Lead	mg/l	0.015*	0.0075	0.019 (3)	0.019 (3)	<0.002	<0.003	<0.003
Lead, filtered	mg/l	0.015*	0.0075					<0.003
Mercury	mg/l	0.002	0.002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Mercury, filtered	mg/l	0.002	0.002					<0.0002
Nickel	mg/l	0.1	0.1	<0.023	0.026	<0.023	<0.040	<0.040
Nickel, filtered	mg/l	0.1	0.1					<0.040
Selenium	mg/l	0.05	0.05	0.0077	0.01	0.0098	0.013	0.005 J
Selenium, filtered	mg/l	0.05	0.05					0.006
Silver	mg/l	–	0.05	<0.0004	<0.009	<0.009	<0.010	<0.010
Silver, filtered	mg/l	–	0.05					<0.010
Thallium	mg/l	0.002	–	<0.002	<0.002	<0.002	<0.050	<0.002
Thallium, filtered	mg/l	0.002	–					<0.002
Zinc	mg/l	–	5.0	<0.020	0.067	<0.020	<0.020	0.026
Zinc, filtered	mg/l	–	5.0					<0.020

U – The compound was analyzed for but was not detected. The associated numerical value is attributed to contamination and is considered to be the sample quantitation limit.

J – The associated numerical value is an estimated quantity.

* – Action Level that triggers treatment.

(1) – Sample concentration is above the MCL.

(2) – Sample concentration is above the Illinois Groundwater Quality Standard for a Class I Potable Resource.

(3) – Sample Concentration is above both the MCL and the Illinois Class I Groundwater Quality Standard.

Table 5: Metals Results of Historical Groundwater Sampling Events NL/Taracorp Superfund Site

Parameter	Unit	MCLs (mg/L)	ILLINOIS CLASS I STANDARDS (mg/L)	MW-107S JULY 1992	OCTOBER 1992	MARCH 1993	SEPTEMBER 1993	APRIL 1994
Antimony	mg/l	0.006	–	0.008 (1)	<0.011	<0.060	<0.050	<0.006
Antimony, filtered	mg/l	0.006	–					<0.006
Arsenic	mg/l	0.05	0.05	0.044	0.10 (3)	0.026	<0.010	<0.010
Arsenic, filtered	mg/l	0.05	0.05					<0.010
Beryllium	mg/l	0.004	–	0.002	0.0079 (1)	0.0019	<0.005	<0.004
Beryllium, filtered	mg/l	0.004	–					<0.004
Cadmium	mg/l	0.005	0.005	0.0032	0.010 (3)	<0.005	<0.005	<0.005
Cadmium, filtered	mg/l	0.005	0.005					<0.005
Chromium	mg/l	0.1	0.1	0.042	0.35 J (3)	0.061	0.014	0.017
Chromium, filtered	mg/l	0.1	0.1					<0.010
Copper	mg/l	1.3*	0.65	0.064	0.3	0.066	<0.025	<0.025
Copper, filtered	mg/l	1.3*	0.65					<0.025
Lead	mg/l	0.015*	0.0075	0.14 (3)	0.52 (3)	0.087 (3)	0.047 (3)	0.007
Lead, filtered	mg/l	0.015*	0.0075					<0.003
Mercury	mg/l	0.002	0.002	<0.0002	0.0006	<0.0002	<0.0002	<0.0002
Mercury, filtered	mg/l	0.002	0.002					<0.0002
Nickel	mg/l	0.1	0.1	0.11 (3)	0.43 (3)	0.092	<0.040	<0.040
Nickel, filtered	mg/l	0.1	0.1					<0.040
Selenium	mg/l	0.05	0.05	<0.003	<0.003	<0.003	0.011	<0.005
Selenium, filtered	mg/l	0.05	0.05					<0.005
Silver	mg/l	–	0.05	<0.0004	<0.009	<0.009	<0.010	<0.010
Silver, filtered	mg/l	–	0.05					<0.010
Thallium	mg/l	0.002	–	<0.002	<0.002	<0.002	<0.050	<0.002
Thallium, filtered	mg/l	0.002	–					<0.002
Zinc	mg/l	–	5.0	0.25	0.86	0.18	0.084	0.041
Zinc, filtered	mg/l	–	5.0					<0.020

U – The compound was analyzed for but was not detected. The associated numerical value is attributed to contamination and is considered to be the sample quantitation limit.

J – The associated numerical value is an estimated quantity.

* – Action Level that triggers treatment.

(1) – Sample concentration is above the MCL.

(2) – Sample concentration is above the Illinois Groundwater Quality Standard for a Class I Potable Resource.

(3) – Sample Concentration is above both the MCL and the Illinois Class I Groundwater Quality Standard.

Table 5: Metals Results of Historical Groundwater Sampling Events NL/Taracorp Superfund Site

Parameter	Unit	MCLs (mg/L)	ILLINOIS CLASS I STANDARDS (mg/L)	MW-107D JULY 1992	MW-107D OCTOBER 1992	MW-107D MARCH 1993	MW-107D SEPTEMBER 1993	MW-107D APRIL 1994	MW-107D QC FIELD DUPLICATE APRIL 1994
Antimony	mg/l	0.006	–	0.005	<0.011	<0.060	<0.050	<0.006	<0.006
Antimony, filtered	mg/l	0.006	–					<0.006	<0.006
Arsenic	mg/l	0.05	0.05	0.065 (3)	0.04	0.024	<0.010	<0.010	<0.010
Arsenic, filtered	mg/l	0.05	0.05					<0.010	<0.010
Beryllium	mg/l	0.004	–	0.0016	0.0017	0.0006	<0.005	<0.004	<0.004
Beryllium, filtered	mg/l	0.004	–					<0.004	<0.004
Cadmium	mg/l	0.005	0.005	0.0018	<0.005	<0.005	<0.005	<0.005	<0.005
Cadmium, filtered	mg/l	0.005	0.005					<0.005	<0.005
Chromium	mg/l	0.1	0.1	0.044	0.067 J	0.078	0.076	<0.010	<0.010
Chromium, filtered	mg/l	0.1	0.1					<0.010	<0.010
Copper	mg/l	1.3*	0.65	0.052	0.054	0.027	<0.025	<0.025	<0.025
Copper, filtered	mg/l	1.3*	0.65					<0.025	<0.025
Lead	mg/l	0.015*	0.0075	0.11 (3)	0.12 (3)	0.067 (3)	<0.003	<0.003	<0.003
Lead, filtered	mg/l	0.015*	0.0075					<0.003	<0.003
Mercury	mg/l	0.002	0.002	<0.0002	0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Mercury, filtered	mg/l	0.002	0.002					<0.0002	<0.0002
Nickel	mg/l	0.1	0.1	0.054	0.057	0.045	<0.040	<0.040	<0.040
Nickel, filtered	mg/l	0.1	0.1					<0.040	<0.040
Selenium	mg/l	0.05	0.05	<0.003	<0.003	<0.003	<0.005	<0.005	<0.005
Selenium, filtered	mg/l	0.05	0.05					<0.005	<0.005
Silver	mg/l	–	0.05	<0.0004	<0.009	<0.009	<0.010	<0.010	<0.010
Silver, filtered	mg/l	–	0.05					<0.010	<0.010
Thallium	mg/l	0.002	–	<0.002	<0.002	<0.002	<0.050	<0.002	<0.002
Thallium, filtered	mg/l	0.002	–					<0.002	<0.002
Zinc	mg/l	–	5.0	0.22	0.25	0.091	0.05	<0.020	<0.020
Zinc, filtered	mg/l	–	5.0					<0.020	<0.020

U – The compound was analyzed for but was not detected. The associated numerical value is attributed to contamination and is considered to be the sample quantitation limit.

J – The associated numerical value is an estimated quantity.

* – Action Level that triggers treatment.

(1) – Sample concentration is above the MCL.

(2) – Sample concentration is above the Illinois Groundwater Quality Standard for a Class I Potable Resource.

(3) – Sample Concentration is above both the MCL and the Illinois Class I Groundwater Quality Standard.

Table 5: (cont'd)

Parameter	Unit	MCLs (mg/L)	ILLINOIS CLASS I STANDARDS (mg/L)	MW-108S SEPTEMBER 1993	MW-108S APRIL 1994
Antimony	mg/l	0.006	–	<0.050	0.007 (1)
Antimony, filtered	mg/l	0.006	–		<0.006
Arsenic	mg/l	0.05	0.05	0.109 (3)	0.017
Arsenic, filtered	mg/l	0.05	0.05		<0.010
Beryllium	mg/l	0.004	–	<0.005	<0.004
Beryllium, filtered	mg/l	0.004	–		<0.004
Cadmium	mg/l	0.005	0.005	0.475 (3)	0.180 (3)
Cadmium, filtered	mg/l	0.005	0.005		0.144 (3)
Chromium	mg/l	0.1	0.1	0.082	0.043
Chromium, filtered	mg/l	0.1	0.1		<0.010
Copper	mg/l	1.3*	0.65	0.092	0.039
Copper, filtered	mg/l	1.3*	0.65		<0.025
Lead	mg/l	0.015*	0.0075	1.02 (3)	0.312 (3)
Lead, filtered	mg/l	0.015*	0.0075		<0.003
Mercury	mg/l	0.002	0.002	<0.0002	<0.0002
Mercury, filtered	mg/l	0.002	0.002		<0.0002
Nickel	mg/l	0.1	0.1	0.254 (3)	0.075
Nickel, filtered	mg/l	0.1	0.1		<0.040
Selenium	mg/l	0.05	0.05	<0.005	<0.005
Selenium, filtered	mg/l	0.05	0.05		<0.005
Silver	mg/l	–	0.05	<0.010	<0.010
Silver, filtered	mg/l	–	0.05		<0.010
Thallium	mg/l	0.002	–	0.07 (1)	0.008 (1)
Thallium, filtered	mg/l	0.002	–		0.003 (1)
Zinc	mg/l	–	5.0	0.567	0.177
Zinc, filtered	mg/l	–	5.0		0.028

U – The compound was analyzed for but was not detected. The associated numerical value is attributed to contamination and is considered to be the sample quantitation limit.

J – The associated numerical value is an estimated quantity.

* – Action Level that triggers treatment.

(1) – Sample concentration is above the MCL.

(2) – Sample concentration is above the Illinois Groundwater Quality Standard for a Class I Potable Resource.

(3) – Sample Concentration is above both the MCL and the Illinois Class I Groundwater Quality Standard.

Table 5: Metals Results of Historical Groundwater Sampling Events NL/Taracorp Superfund Site

Parameter	Unit	MCLs (mg/L)	ILLINOIS CLASS I STANDARDS (mg/L)	MW-108D JULY 1992	OCTOBER 1992	MARCH 1993	SEPTEMBER 1993	APRIL 1994
Antimony	mg/l	0.006	–	<0.008	0.022 (1)	<0.060	<0.050	<0.006
Antimony, filtered	mg/l	0.006	–					<0.006
Arsenic	mg/l	0.05	0.05	<0.003	0.018	<0.003	<0.010	<0.010
Arsenic, filtered	mg/l	0.05	0.05					<0.010
Beryllium	mg/l	0.004	–	<0.0006	0.00202	<0.0006	<0.005	<0.004
Beryllium, filtered	mg/l	0.004	–					<0.004
Cadmium	mg/l	0.005	0.005	8.5 (3)	9.6 (3)	1.9 (3)	4.51 (3)	5.41 (3)
Cadmium, filtered	mg/l	0.005	0.005					5.08 (3)
Chromium	mg/l	0.1	0.1	0.006	0.073 J	0.022	<0.010	<0.010
Chromium, filtered	mg/l	0.1	0.1					<0.010
Copper	mg/l	1.3*	0.65	<0.014	0.045	<0.014	<0.025	<0.025
Copper, filtered	mg/l	1.3*	0.65					<0.025
Lead	mg/l	0.015*	0.0075	0.023 (3)	0.14 (3)	0.0043	<0.003	<0.003
Lead, filtered	mg/l	0.015*	0.0075					<0.003
Mercury	mg/l	0.002	0.002	<0.0002	0.0002	<0.0002	<0.0002	<0.0002
Mercury, filtered	mg/l	0.002	0.002					<0.0002
Nickel	mg/l	0.1	0.1	0.46 (3)	0.63 (3)	0.17 (3)	0.313 (3)	0.435 (3)
Nickel, filtered	mg/l	0.1	0.1					0.396 (3)
Selenium	mg/l	0.05	0.05	<0.003	<0.003	<0.015	<0.005	<0.005
Selenium, filtered	mg/l	0.05	0.05					<0.005
Silver	mg/l	–	0.05	<0.0004	<0.009	<0.009	<0.010	0.012
Silver, filtered	mg/l	–	0.05					<0.010
Thallium	mg/l	0.002	–	0.046 (1)	0.046 (1)	0.028 (1)	<0.050	0.045 (1)
Thallium, filtered	mg/l	0.002	–					0.043 (1)
Zinc	mg/l	–	5.0	28 (2)	34 (2)	7.6 (2)	18.1 (2)	23.1 (2)
Zinc, filtered	mg/l	–	5.0					21.5 (2)

U – The compound was analyzed for but was not detected. The associated numerical value is attributed to contamination and is considered to be the sample quantitation limit.

J – The associated numerical value is an estimated quantity.

* – Action Level that triggers treatment.

(1) – Sample concentration is above the MCL.

(2) – Sample concentration is above the Illinois Groundwater Quality Standard for a Class I Potable Resource.

(3) – Sample Concentration is above both the MCL and the Illinois Class I Groundwater Quality Standard.

Table 5: Metals Results of Historical Groundwater Sampling Events NL/Taracorp Superfund Site

Parameter	Unit	MCLs (mg/L)	ILLINOIS CLASS I STANDARDS (mg/L)	MW-108D QC FIELD DUPLICATE JULY 1992	OCTOBER 1992	MARCH 1993	SEPTEMBER 1993
Antimony	mg/l	0.006	–	<0.002	<0.011	<0.060	<0.050
Antimony, filtered	mg/l	0.006	–				
Arsenic	mg/l	0.05	0.05	<0.003	0.023	<0.003	<0.010
Arsenic, filtered	mg/l	0.05	0.05				
Beryllium	mg/l	0.004	–	0.0007	0.00188	<0.0006	<0.005
Beryllium, filtered	mg/l	0.004	–				
Cadmium	mg/l	0.005	0.005	9.0 (3)	9.2 (3)	1.9 (3)	4.42 (3)
Cadmium, filtered	mg/l	0.005	0.005				
Chromium	mg/l	0.1	0.1	0.006	0.084 J	0.029	<0.010
Chromium, filtered	mg/l	0.1	0.1				
Copper	mg/l	1.3*	0.65	<0.014	0.044	<0.014	<0.025
Copper, filtered	mg/l	1.3*	0.65				
Lead	mg/l	0.015*	0.0075	0.026 (3)	0.15 (3)	0.0038	<0.003
Lead, filtered	mg/l	0.015*	0.0075				
Mercury	mg/l	0.002	0.002	<0.0002	0.0002	<0.0002	<0.0002
Mercury, filtered	mg/l	0.002	0.002				
Nickel	mg/l	0.1	0.1	0.47 (3)	0.64 (3)	0.18 (3)	0.302 (3)
Nickel, filtered	mg/l	0.1	0.1				
Selenium	mg/l	0.05	0.05	<0.003	<0.003	<0.015	<0.005
Selenium, filtered	mg/l	0.05	0.05				
Silver	mg/l	–	0.05	<0.0004	<0.009	<0.009	<0.010
Silver, filtered	mg/l	–	0.05				
Thallium	mg/l	0.002	–	0.048 (1)	0.051 (1)	0.029 (1)	0.05 (1)
Thallium, filtered	mg/l	0.002	–				
Zinc	mg/l	–	5.0	28 (2)	34 (2)	7.7 (2)	17.9 (2)
Zinc, filtered	mg/l	–	5.0				

U – The compound was analyzed for but was not detected. The associated numerical value is attributed to contamination and is considered to be the sample quantitation limit.

J – The associated numerical value is an estimated quantity.

* – Action Level that triggers treatment.

(1) – Sample concentration is above the MCL.

(2) – Sample concentration is above the Illinois Groundwater Quality Standard for a Class I Potable Resource.

(3) – Sample Concentration is above both the MCL and the Illinois Class I Groundwater Quality Standard.

Table 5: Metals Results of Historical Groundwater Sampling Events NL/Taracorp Superfund Site

Parameter	Unit	MCLs (mg/L)	ILLINOIS CLASS I STANDARDS (mg/L)	MW-109 JULY 1992	OCTOBER 1992	MARCH 1993	SEPTEMBER 1993	APRIL 1994
Antimony	mg/l	0.006	–	<0.002	<0.011	<0.060	<0.050	<0.006
Antimony, filtered	mg/l	0.006	–					
Arsenic	mg/l	0.05	0.05	<0.003	<0.003	<0.003	<0.010	<0.010
Arsenic, filtered	mg/l	0.05	0.05					
Beryllium	mg/l	0.004	–	<0.0006	<0.0006	<0.0006	<0.005	<0.004
Beryllium, filtered	mg/l	0.004	–					
Cadmium	mg/l	0.005	0.005	0.0028	<0.005	<0.005	<0.005	<0.005
Cadmium, filtered	mg/l	0.005	0.005					
Chromium	mg/l	0.1	0.1	<0.002	<0.013	<0.013	<0.010	<0.010
Chromium, filtered	mg/l	0.1	0.1					
Copper	mg/l	1.3*	0.65	<0.014	<0.014	<0.014	<0.025	<0.025
Copper, filtered	mg/l	1.3*	0.65					
Lead	mg/l	0.015*	0.0075	0.0046	0.019 (3)	<0.002	<0.003	<0.003
Lead, filtered	mg/l	0.015*	0.0075					
Mercury	mg/l	0.002	0.002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Mercury, filtered	mg/l	0.002	0.002					
Nickel	mg/l	0.1	0.1	<0.023	<0.023	<0.023	0.059	<0.040
Nickel, filtered	mg/l	0.1	0.1					
Selenium	mg/l	0.05	0.05	<0.003	<0.003	<0.003	<0.005	<0.005
Selenium, filtered	mg/l	0.05	0.05					
Silver	mg/l	–	0.05	<0.0004	<0.009	<0.009	<0.010	<0.010
Silver, filtered	mg/l	–	0.05					
Thallium	mg/l	0.002	–	<0.002	<0.002	<0.002	<0.050	<0.002
Thallium, filtered	mg/l	0.002	–					
Zinc	mg/l	–	5.0	0.057	0.077 J	<0.020	<0.020	<0.020
Zinc, filtered	mg/l	–	5.0					

U – The compound was analyzed for but was not detected. The associated numerical value is attributed to contamination and is considered to be the sample quantitation limit.

J – The associated numerical value is an estimated quantity.

* – Action Level that triggers treatment.

(1) – Sample concentration is above the MCL.

(2) – Sample concentration is above the Illinois Groundwater Quality Standard for a Class I Potable Resource.

(3) – Sample Concentration is above both the MCL and the Illinois Class I Groundwater Quality Standard.

Table 5: Metals Results of Historical Groundwater Sampling Events NL/Taracorp Superfund Site

Parameter	Unit	MCLs (mg/L)	ILLINOIS CLASS I STANDARDS (mg/L)	MW-109-92 JULY 1992	OCTOBER 1992	MARCH 1993	SEPTEMBER 1993	APRIL 1994
Antimony	mg/l	0.006	–	<0.002	<0.011	<0.060	<0.050	<0.006
Antimony, filtered	mg/l	0.006	–					
Arsenic	mg/l	0.05	0.05	<0.003	<0.003	<0.003	<0.010	<0.010
Arsenic, filtered	mg/l	0.05	0.05					
Beryllium	mg/l	0.004	–	<0.0006	<0.0006	<0.0006	<0.005	<0.004
Beryllium, filtered	mg/l	0.004	–					
Cadmium	mg/l	0.005	0.005	0.0018	<0.005	<0.005	<0.005	<0.005
Cadmium, filtered	mg/l	0.005	0.005					
Chromium	mg/l	0.1	0.1	0.003	0.021 U	<0.013	<0.010	0.011
Chromium, filtered	mg/l	0.1	0.1					
Copper	mg/l	1.3*	0.65	<0.014	<0.014	<0.014	<0.025	<0.025
Copper, filtered	mg/l	1.3*	0.65					
Lead	mg/l	0.015*	0.0075	0.018 (3)	0.0038	<0.002	<0.003	<0.003
Lead, filtered	mg/l	0.015*	0.0075					
Mercury	mg/l	0.002	0.002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Mercury, filtered	mg/l	0.002	0.002					
Nickel	mg/l	0.1	0.1	<0.023	<0.023	<0.023	<0.040	<0.040
Nickel, filtered	mg/l	0.1	0.1					
Selenium	mg/l	0.05	0.05	<0.003	<0.003	<0.003	<0.005	<0.005
Selenium, filtered	mg/l	0.05	0.05					
Silver	mg/l	–	0.05	<0.0004	<0.009	<0.009	<0.010	<0.010
Silver, filtered	mg/l	–	0.05					
Thallium	mg/l	0.002	–	<0.002	<0.002	<0.002	<0.050	<0.002
Thallium, filtered	mg/l	0.002	–					
Zinc	mg/l	–	5.0	0.081	0.057 J	<0.020	<0.020	<0.020
Zinc, filtered	mg/l	–	5.0					

U – The compound was analyzed for but was not detected. The associated numerical value is attributed to contamination and is considered to be the sample quantitation limit.

J – The associated numerical value is an estimated quantity.

* – Action Level that triggers treatment.

(1) – Sample concentration is above the MCL.

(2) – Sample concentration is above the Illinois Groundwater Quality Standard for a Class I Potable Resource.

(3) – Sample Concentration is above both the MCL and the Illinois Class I Groundwater Quality Standard.

Table 5: Metals Results of Historical Groundwater Sampling Events NL/Taracorp Superfund Site

Parameter	Unit	MCLs (mg/L)	ILLINOIS CLASS I STANDARDS (mg/L)	MW-110 JULY 1992	OCTOBER 1992	MARCH 1993	SEPTEMBER 1993	APRIL 1994
Antimony	mg/l	0.006	–	<0.002	<0.011	<0.060	<0.050	<0.006
Antimony, filtered	mg/l	0.006	–					
Arsenic	mg/l	0.05	0.05	<0.003	<0.003	<0.003	<0.010	<0.010
Arsenic, filtered	mg/l	0.05	0.05					
Beryllium	mg/l	0.004	–	<0.0006	<0.0006	<0.0006	<0.005	<0.004
Beryllium, filtered	mg/l	0.004	–					
Cadmium	mg/l	0.005	0.005	0.0013	<0.005	<0.005	<0.005	<0.005
Cadmium, filtered	mg/l	0.005	0.005					
Chromium	mg/l	0.1	0.1	<0.002	<0.013	<0.013	<0.010	<0.010
Chromium, filtered	mg/l	0.1	0.1					
Copper	mg/l	1.3*	0.65	<0.014	<0.014	<0.014	<0.025	<0.025
Copper, filtered	mg/l	1.3*	0.65					
Lead	mg/l	0.015*	0.0075	0.0042	0.017 (3)	<0.002	<0.003	<0.003
Lead, filtered	mg/l	0.015*	0.0075					
Mercury	mg/l	0.002	0.002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Mercury, filtered	mg/l	0.002	0.002					
Nickel	mg/l	0.1	0.1	<0.023	0.033	<0.023	<0.040	<0.040
Nickel, filtered	mg/l	0.1	0.1					
Selenium	mg/l	0.05	0.05	<0.003	<0.003	<0.003	<0.005	<0.005 J
Selenium, filtered	mg/l	0.05	0.05					
Silver	mg/l	–	0.05	<0.0004	<0.009	<0.009	<0.010	<0.010
Silver, filtered	mg/l	–	0.05					
Thallium	mg/l	0.002	–	<0.002	<0.002	<0.002	<0.050	<0.002
Thallium, filtered	mg/l	0.002	–					
Zinc	mg/l	–	5.0	0.043	0.078	<0.020	<0.020	<0.020
Zinc, filtered	mg/l	–	5.0					

U – The compound was analyzed for but was not detected. The associated numerical value is attributed to contamination and is considered to be the sample quantitation limit.

J – The associated numerical value is an estimated quantity.

* – Action Level that triggers treatment.

(1) – Sample concentration is above the MCL.

(2) – Sample concentration is above the Illinois Groundwater Quality Standard for a Class I Potable Resource.

(3) – Sample Concentration is above both the MCL and the Illinois Class I Groundwater Quality Standard.

Table 5: Metals Results of Historical Groundwater Sampling Events NL/Taracorp Superfund Site

Parameter	Unit	MCLs (mg/L)	ILLINOIS CLASS I STANDARDS (mg/L)	MW-111-92 JULY 1992	OCTOBER 1992	MARCH 1993	SEPTEMBER 1993	APRIL 1994
Antimony	mg/l	0.006	–	<0.002	<0.011	<0.060	<0.050	<0.006
Antimony, filtered	mg/l	0.006	–					
Arsenic	mg/l	0.05	0.05	0.0046	0.0037	<0.003	<0.010	<0.010
Arsenic, filtered	mg/l	0.05	0.05					
Beryllium	mg/l	0.004	–	<0.0006	<0.0006	<0.0006	<0.005	<0.004
Beryllium, filtered	mg/l	0.004	–					
Cadmium	mg/l	0.005	0.005	<0.0003	<0.005	<0.005	<0.005	<0.005
Cadmium, filtered	mg/l	0.005	0.005					
Chromium	mg/l	0.1	0.1	<0.002	0.024 U	<0.013	<0.010	<0.010
Chromium, filtered	mg/l	0.1	0.1					
Copper	mg/l	1.3*	0.65	<0.014	<0.014	<0.014	<0.025	<0.025
Copper, filtered	mg/l	1.3*	0.65					
Lead	mg/l	0.015*	0.0075	0.003	0.009 (2)	<0.002	<0.003	<0.003
Lead, filtered	mg/l	0.015*	0.0075					
Mercury	mg/l	0.002	0.002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Mercury, filtered	mg/l	0.002	0.002					
Nickel	mg/l	0.1	0.1	<0.023	<0.023	<0.023	<0.040	<0.040
Nickel, filtered	mg/l	0.1	0.1					
Selenium	mg/l	0.05	0.05	<0.003	<0.003	<0.003	<0.005	<0.005
Selenium, filtered	mg/l	0.05	0.05					
Silver	mg/l	–	0.05	<0.0004	<0.009	<0.009	<0.010	<0.010
Silver, filtered	mg/l	–	0.05					
Thallium	mg/l	0.002	–	<0.002	<0.002	<0.002	<0.050	<0.002
Thallium, filtered	mg/l	0.002	–					
Zinc	mg/l	–	5.0	0.043	0.073	<0.020	<0.020	<0.020
Zinc, filtered	mg/l	–	5.0					

U – The compound was analyzed for but was not detected. The associated numerical value is attributed to contamination and is considered to be the sample quantitation limit.

J – The associated numerical value is an estimated quantity.

* – Action Level that triggers treatment.

(1) – Sample concentration is above the MCL.

(2) – Sample concentration is above the Illinois Groundwater Quality Standard for a Class I Potable Resource.

(3) – Sample Concentration is above both the MCL and the Illinois Class I Groundwater Quality Standard.

Table 5: Metals Results of Historical Groundwater Sampling Events NL/Taracorp Superfund Site

Parameter	Unit	MCLs (mg/L)	ILLINOIS CLASS I STANDARDS (mg/L)	MW-111-92 QC FIELD DUPLICATE JULY 1992	OCTOBER 1992	MARCH 1993	SEPTEMBER 1993	APRIL 1994
Antimony	mg/l	0.006	–	<0.002	<0.011	<0.060	<0.050	<0.006
Antimony, filtered	mg/l	0.006	–					
Arsenic	mg/l	0.05	0.05	0.004	<0.003	<0.003	<0.010	<0.010
Arsenic, filtered	mg/l	0.05	0.05					
Beryllium	mg/l	0.004	–	<0.0006	<0.0006	<0.0006	<0.005	<0.004
Beryllium, filtered	mg/l	0.004	–					
Cadmium	mg/l	0.005	0.005	0.0004	<0.005	<0.005	<0.005	<0.005
Cadmium, filtered	mg/l	0.005	0.005					
Chromium	mg/l	0.1	0.1	<0.002	0.027 U	<0.013	<0.010	<0.010
Chromium, filtered	mg/l	0.1	0.1					
Copper	mg/l	1.3*	0.65	<0.014	<0.014	<0.014	<0.025	<0.025
Copper, filtered	mg/l	1.3*	0.65					
Lead	mg/l	0.015*	0.0075	0.0094 (2)	0.0072	<0.002	<0.003	<0.003
Lead, filtered	mg/l	0.015*	0.0075					
Mercury	mg/l	0.002	0.002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Mercury, filtered	mg/l	0.002	0.002					
Nickel	mg/l	0.1	0.1	<0.023	<0.023	<0.023	<0.040	<0.040
Nickel, filtered	mg/l	0.1	0.1					
Selenium	mg/l	0.05	0.05	<0.003	<0.003	<0.003	<0.005	<0.005
Selenium, filtered	mg/l	0.05	0.05					
Silver	mg/l	–	0.05	<0.0004	<0.009	<0.009	<0.010	<0.010
Silver, filtered	mg/l	–	0.05					
Thallium	mg/l	0.002	–	<0.002	<0.002	<0.002	<0.050	<0.002
Thallium, filtered	mg/l	0.002	–					
Zinc	mg/l	–	5.0	0.059	0.068	<0.020	<0.020	<0.020
Zinc, filtered	mg/l	–	5.0					

U – The compound was analyzed for but was not detected. The associated numerical value is attributed to contamination and is considered to be the sample quantitation limit.

J – The associated numerical value is an estimated quantity.

* – *Action Level that triggers treatment.*

(1) – Sample concentration is above the MCL.

(2) – Sample concentration is above the Illinois Groundwater Quality Standard for a Class I Potable Resource.

(3) – Sample Concentration is above both the MCL and the Illinois Class I Groundwater Quality Standard.

Table 5: Metals Results of Historical Groundwater Sampling Events NL/Taracorp Superfund Site

Parameter	Unit	MCLs (mg/L)	ILLINOIS CLASS I STANDARDS (mg/L)	MW-112 QC RINSATE BLANK JULY 1992	MW-112 QC RINSATE BLANK OCTOBER 1992	MW-112 QC RINSATE BLANK MARCH 1993	MW-112 QC RINSATE BLANK SEPTEMBER 1993	MW-112 QC RINSATE BLANK APRIL 1994	MW-113 QC RINSATE APRIL 1994
Antimony	mg/l	0.006	–	<0.002	<0.011	<0.060	<0.050	<0.006	<0.006
Antimony, filtered	mg/l	0.006	–						
Arsenic	mg/l	0.05	0.05	0.0032	<0.003	<0.003	<0.010	<0.010	<0.010
Arsenic, filtered	mg/l	0.05	0.05						
Beryllium	mg/l	0.004	–	<0.0006	<0.0006	<0.0006	<0.005	<0.004	<0.004
Beryllium, filtered	mg/l	0.004	–						
Cadmium	mg/l	0.005	0.005	<0.0003	<0.005	<0.005	<0.005	<0.005	<0.005
Cadmium, filtered	mg/l	0.005	0.005						
Chromium	mg/l	0.1	0.1	<0.002	<0.013	<0.013	<0.010	<0.010	<0.010
Chromium, filtered	mg/l	0.1	0.1						
Copper	mg/l	1.3*	0.65	<0.014	<0.014	<0.014	<0.025	<0.025	<0.025
Copper, filtered	mg/l	1.3*	0.65						
Lead	mg/l	0.015*	0.0075	<0.002	<0.002	<0.002	<0.003	<0.003	<0.003
Lead, filtered	mg/l	0.015*	0.0075						
Mercury	mg/l	0.002	0.002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Mercury, filtered	mg/l	0.002	0.002						
Nickel	mg/l	0.1	0.1	<0.023	<0.023	<0.023	<0.040	<0.040	<0.040
Nickel, filtered	mg/l	0.1	0.1						
Selenium	mg/l	0.05	0.05	<0.003	<0.003	<0.003	<0.005	<0.005	<0.005
Selenium, filtered	mg/l	0.05	0.05						
Silver	mg/l	–	0.05	<0.0004	<0.009	<0.009	<0.010	<0.010	<0.010
Silver, filtered	mg/l	–	0.05						
Thallium	mg/l	0.002	–	<0.002	<0.002	<0.002	<0.050	<0.002	<0.002
Thallium, filtered	mg/l	0.002	–						
Zinc	mg/l	–	5.0	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Zinc, filtered	mg/l	–	5.0						

U – The compound was analyzed for but was not detected. The associated numerical value is attributed to contamination and is considered to be the sample quantitation limit.

J – The associated numerical value is an estimated quantity.

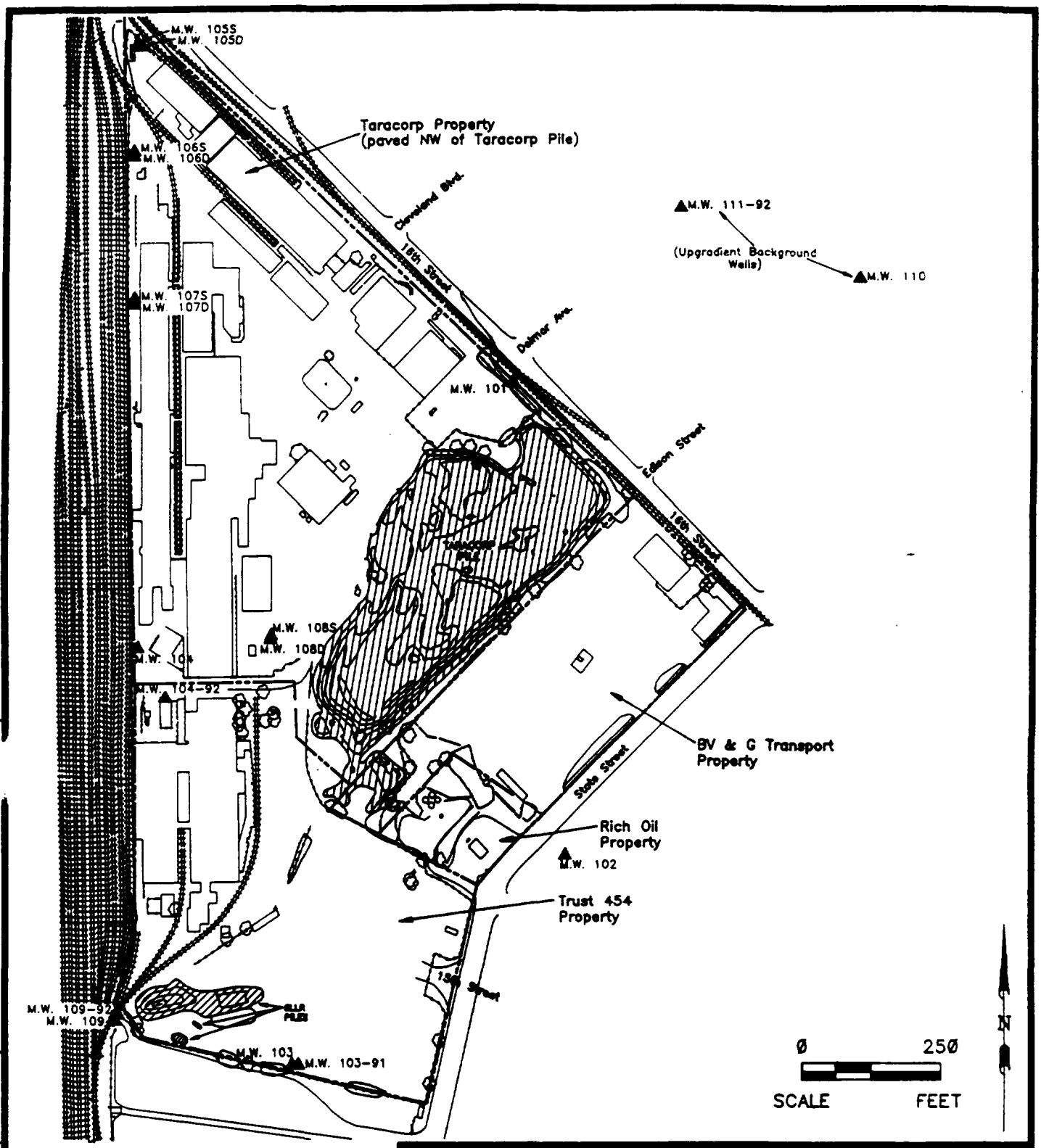
* – Action Level that triggers treatment.

(1) – Sample concentration is above the MCL.

(2) – Sample concentration is above the Illinois Groundwater Quality Standard for a Class I Potable Resource.

(3) – Sample Concentration is above both the MCL and the Illinois Class I Groundwater Quality Standard.

FIGURE



LEGEND

▲ M.W. 108S — DENOTES MONITORING WELL

——— DENOTES PROPERTY LINE

NL/TARACORP SUPERFUND SITE PDFI
GRANITE CITY, ILLINOIS
U.S. ARMY CORPS OF ENGINEERS

PROJECT NO. C3M11Q

Woodward-Clyde Consultants

Engineering & sciences applied to the earth & its environment

DRN. BY: kdw 11/11/93
DSGN. BY:
CHKD. BY:

Main Industrial Property Site Plan

FIG. NO. 1-5

APPENDIX A

ANALYTICAL DATA

GROUNDWATER SAMPLE IDENTIFICATION NUMBERS CROSS-REFERENCE
FIRST QUARTER 1994 SAMPLING EVENT
NL/TARACORP SUPERFUND SITE
MRD LIMS #2570

Well Number	W-C Field Sample ID	QA Field Sample ID
MW-104 (Total)	WMW104-10GGW	WMW104-10GGWQ
MW-104-92 (Total)	WMW104920GGW	WMW104920GGWQ
MW-104-92 (MS Total)	NA	WMW104920GGWR
MW-104-92 (MSD Total)	NA	WMW104920GGWS
MW-104-92 (Filtered)	WMW104920GGWF	WMW104920GGWQF
MW-112 (Rinsate Blank)	WMW112-10GGWB	WMW112-10GGWT

For laboratory cross-reference sample numbers, see page 3 and 4 of the laboratory data.

METALS/WET CHEMISTRY DATA ASSESSMENT

PROJECT NO. C3M1Q1-21
LABORATORY Environmetrics
LAB PROJECT NO. 26164
NO. OF SAMPLES/
MATRIX 36/Groundwater

SITE NL/Taracorp Superfund Site
REVIEWER Cynthia Pavelka
REVIEWER'S NAME Cynthia Pavelka
COMPLETION DATE 5/27/94

DATA ASSESSMENT SUMMARY

	ICP	AA	Hg	CN	OTHER
1. HOLDING TIMES	√	√	√	___	___
2. BLANKS	√	√	√	___	___
3. SCS	√	√	√	___	___
4. DCS	NA	NA	NA	___	___
5. DILUTION	NA	NA	NA	___	___
6. OTHER QC (MS/MSD)	√	(1)	√	___	___
7. OVERALL ASSESSMENT	O	O	O	___	___

O = Data had no problems/or qualified due to minor problems.
M = Data qualified due to major problems.
Z = Data unacceptable.
X = Problems, but do not affect data.

ACTION ITEMS: (1) Selenium concentration for Sample WMW106-DØGGW is qualified as estimated (J) due to poor matrix spike recovery. Selenium concentration for Sample WMW11C-1ØGGW is qualified as estimated (J) due to poor matrix spike recovery.

COMMENTS: ___

ENVIRONMETRICS
2345 Millpark Drive
Maryland Heights, MO 63043-3529
(314) 427-0550

April 25, 1994

Ms. Cynthia Pavelka
Woodward-Clyde Consultants
2318 Millpark Drive
Maryland Heights, MO. 63043

Ms. Pavelka,

Environmetrics, Inc. is pleased to submit this data package for the first quarter of the groundwater samples taken for the Granite City project. The batch consisted of 24 unfiltered field samples and 12 field filtered samples collected from April 6 through April 8, 1994. Enclosed are results for total metals using U.S. EPA SW-846 methods. The QA/QC data package consisted of rinsate blanks, field duplicates, matrix spikes/matrix spike duplicates, an laboratory preparation blanks and control samples (LCS).

All analyses were completed within the necessary holding times.

QA/QC Summary

MATRIX SPIKE / MATRIX SPIKE DUPLICATES

In accordance with U.S. EPA SW-846 methodology, all spiking analytes were within guidelines for the relative percent difference (<20%).

Should you have any questions or comments, please contact me at your convenience.

Sincerely,

Karen J. Coons
Client Service Represenative

ENVIRONMETRICS
2345 Millpark Drive
Maryland Heights, MO 63043-3529
(314) 427-0550

PREP.DATE	LAB ID#	SAMPLE ID#	ICP LCS&BLK PREP.CODE	GFAA LCS&BLK PREP.CODE
4/12/94	9404524	WMW105-S0GGW	MP-172-130	MP-117-115
4/12/94	9404525	WMW105-S0GGWF	MP-172-130	MP-117-115
4/12/94	9404526	WMW107-SOGGW	MP-172-130	MP-117-115
4/12/94	9404527	WMW107-S0GGWF	MP-172-130	MP-117-115
4/12/94	9404528	WMW107-D0GGWF	MP-172-130	MP-117-115
4/12/94	9404529	WMW107-D0GGWDF	MP-172-130	MP-117-115
4/12/94	9404530	WMW107-D0GGW CFP	MP-172-130	MP-117-115
4/12/94	9404531	WMW107-D0GGWØD	MP-172-130	MP-117-115
4/12/94	9404532	WMW113-10GGWB	MP-172-130	MP-117-115
4/12/94	9404533	WMW106-S0GGWF	MP-172-130	MP-117-115
4/12/94	9404534	WMW106-SOGGW	MP-172-130	MP-117-115
4/12/94	9404535	WMW106-D0GGW	MP-172-130	MP-117-115
4/12/94	9404536	WMW106-D0GGWF	MP-172-130	MP-117-115
4/12/94	9404537	WMW106-D0GGWM	MP-172-130	MP-117-115
4/12/94	9404538	WMW106-DOGGWX	MP-172-130	MP-117-115

ENVIRONMETRICS
2345 Millpark Drive
Maryland Heights, MO 63043-3529
(314) 427-0550

PREP.DATE	LAB ID#	SAMPLE ID#	ICP LCS&BLK PREP.CODE	GFAA LCS&BLK PREP.CODE
4/12/94	9404349	WMW111920GGW	MP-172-129	MP-117-114
4/12/94	9404350	WMW111920GGWD	MP-172-129	MP-117-114
4/12/94	9404351	WMW101-10GGW	MP-172-129	MP-117-114
4/12/94	9404352	WMW101-10GGWF	MP-172-129	MP-117-114
4/12/94	9404353	WMW112-10GGWB	MP-172-129	MP-117-114
4/12/94	9404354	WMW102-10GGW	MP-172-129	MP-117-114
4/12/94	9404355	WMW102-10GGWF	MP-172-129	MP-117-114
4/12/94	9404356	WMW104920GGW	MP-172-129	MP-117-114
4/12/94	9404357	WMW104920GGWF	MP-172-129	MP-117-114
4/12/94	9404358	WMW104-10GGW	MP-172-129	MP-117-114
4/12/94	9404359	WMW104-10GGWF	MP-172-129	MP-117-114
4/12/94	9404360	WMW108-S0GGW	MP-172-129	MP-117-114
4/12/94	9404361	WMW108-S0GGWF	MP-172-129	MP-117-114
4/12/94	9404362	WMW108-D0GGW	MP-172-129	MP-117-114
4/12/94	9404363	WMW108-DOGGWF	MP-172-129	MP-117-114
4/12/94	9404364	WMW109920GGW	MP-172-129	MP-117-114
4/12/94	9404365	WMW110-10GGW	MP-172-129	MP-117-114
4/12/94	9404366	WMW110-10GGWM	MP-172-129	MP-117-114
4/12/94	9404367	WMW110-10GGWX	MP-172-129	MP-117-114
4/12/94	9404368	WMW109-10GGW	MP-172-129	MP-117-114
4/12/94	9404369	WMW103910GGW	MP-172-129	MP-117-114

ENVIRONMETRICS
2345 Millpark Drive
Maryland Heights, MO 63043-3529
(314) 427-0550

WOODWARD-CLYDE CONSULTANTS
2318 MILLPARK DRIVE
MARYLAND HEIGHTS, MO 63043

ATTN: CYNTHIA PAVELKA

INVOICE # 26164
PROJECT # C3M11Q1-2.1

ANALYSIS RESULTS

SAMPLE ID: WMW111920GGW
LAB ID: 9404349
DATE COLLECTED: 4/07/94 9:20
DATE RECEIVED: 4/07/94

TEST PERFORMED	METHOD OF ANALYSIS	RESULTS	ANALYST
METALS ANALYSIS		TOTAL	
ANTIMONY	SW-846 7041	<0.006 mg/l	4/21/94 D.S.
ARSENIC	SW-846 7060	<0.010	4/15/94 D.S.
BERYLLIUM	SW-846 6010	<0.004	4/13/94 R.D.
CADMIUM	SW-846 6010	<0.005	4/13/94 R.D.
CHROMIUM	SW-846 6010	<0.010	4/13/94 R.D.
COPPER	SW-846 6010	<0.025	4/13/94 R.D.
LEAD	SW-846 7421	<0.003	4/18/94 D.S.
MERCURY	SW-846 7470	<0.0002	4/14/94 B.C.
NICKEL	SW-846 6010	<0.040	4/13/94 R.D.
SELENIUM	SW-846 7740	<0.005	4/15/94 D.S.
SILVER	SW-846 6010	<0.010	4/13/94 R.D.
THALLIUM	SW-846 7841	<0.002	5/06/94 D.S.
ZINC	SW-846 6010	<0.020	4/13/94 R.D.

APRIL 25, 1994

WAYNE L. COOPER
LABORATORY DIRECTOR

ENVIRONMETRICS
2345 Millpark Drive
Maryland Heights, MO 63043-3529
(314) 427-0550

WOODWARD-CLYDE CONSULTANTS
2318 MILLPARK DRIVE
MARYLAND HEIGHTS, MO 63043

ATTN: CYNTHIA PAVELKA

INVOICE # 26164
PROJECT # C3M11Q1-2.1

ANALYSIS RESULTS

SAMPLE ID: WMW111920GGWD
LAB ID: 9404350
DATE COLLECTED: 4/07/94 9:20
DATE RECEIVED: 4/07/94

TEST PERFORMED	METHOD OF ANALYSIS	RESULTS	ANALYST
METALS ANALYSIS		TOTAL	
ANTIMONY	SW-846 7041	<0.006 mg/l	4/21/94 D.S.
ARSENIC	SW-846 7060	<0.010	4/15/94 D.S.
BERYLLIUM	SW-846 6010	<0.004	4/13/94 R.D.
CADMIUM	SW-846 6010	<0.005	4/13/94 R.D.
CHROMIUM	SW-846 6010	<0.010	4/13/94 R.D.
COPPER	SW-846 6010	<0.025	4/13/94 R.D.
LEAD	SW-846 7421	<0.003	4/18/94 D.S.
MERCURY	SW-846 7470	<0.0002	4/14/94 B.C.
NICKEL	SW-846 6010	<0.040	4/13/94 R.D.
SELENIUM	SW-846 7740	<0.005	4/21/94 D.S.
SILVER	SW-846 6010	<0.010	4/13/94 R.D.
THALLIUM	SW-846 7841	<0.002	5/06/94 D.S.
ZINC	SW-846 6010	<0.020	4/13/94 R.D.

APRIL 25, 1994

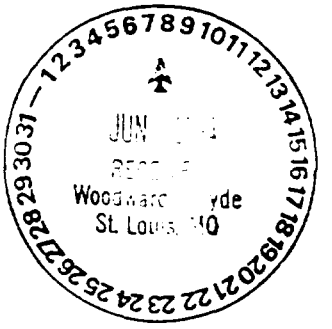
WAYNE L. COOPER
LABORATORY DIRECTOR

ENVIRONMETRICS
2345 Millpark Drive
Maryland Heights, MO 63043-3529
(314) 427-0550

WOODWARD-CLYDE CONSULTANTS
2318 MILLPARK DRIVE
MARYLAND HEIGHTS, MO 63043

ATTN: CYNTHIA PAVELKA

INVOICE # 26164
PROJECT # C3M11Q1-2.1



ANALYSIS RESULTS

SAMPLE ID: WMW101-10GGW
LAB ID: 9404351
DATE COLLECTED: 4/07/94 10:46
DATE RECEIVED: 4/07/94

TEST PERFORMED	METHOD OF ANALYSIS	RESULTS	ANALYST
METALS ANALYSIS		TOTAL	
ANTIMONY	SW-846 7041	<0.006 mg/l	4/21/94 D.S.
ARSENIC	SW-846 7060	0.017	4/15/94 D.S.
BERYLLIUM	SW-846 6010	<0.004	4/13/94 R.D.
CADMIUM	SW-846 6010	<0.005	4/13/94 R.D.
CHROMIUM	SW-846 6010	<0.010	4/13/94 R.D.
COPPER	SW-846 6010	0.072	4/13/94 R.D.
LEAD	SW-846 7421	<0.003	4/18/94 D.S.
MERCURY	SW-846 7470	<0.0002	4/14/94 B.C.
NICKEL	SW-846 6010	<0.040	4/13/94 R.D.
SELENIUM	SW-846 7740	<0.005	4/15/94 D.S.
SILVER	SW-846 6010	<0.010	4/13/94 R.D.
THALLIUM	SW-846 7841	<0.002	5/06/94 D.S.
ZINC	SW-846 6010	0.052	4/13/94 R.D.

APRIL 25, 1994

WAYNE L. COOPER
LABORATORY DIRECTOR

ENVIRONMETRICS
2345 Millpark Drive
Maryland Heights, MO 63043-3529
(314) 427-0550

WOODWARD-CLYDE CONSULTANTS
2318 MILLPARK DRIVE
MARYLAND HEIGHTS, MO 63043

ATTN: CYNTHIA PAVELKA

INVOICE # 26164
PROJECT # C3M11Q1-2.1

ANALYSIS RESULTS

SAMPLE ID: WMW101-10GGWF
LAB ID: 9404352
DATE COLLECTED: 4/07/94 10:46
DATE RECEIVED: 4/07/94

TEST PERFORMED	METHOD OF ANALYSIS	RESULTS	ANALYST
METALS ANALYSIS		DISSOLVED	
ANTIMONY	SW-846 7041	<0.006 mg/l	4/21/94 D.S.
ARSENIC	SW-846 7060	<0.010	4/15/94 D.S.
BERYLLIUM	SW-846 6010	<0.004	4/13/94 R.D.
CADMIUM	SW-846 6010	<0.005	4/13/94 R.D.
CHROMIUM	SW-846 6010	<0.010	4/13/94 R.D.
COPPER	SW-846 6010	<0.025	4/13/94 R.D.
LEAD	SW-846 7421	<0.003	4/18/94 D.S.
MERCURY	SW-846 7470	<0.0002	4/14/94 B.C.
NICKEL	SW-846 6010	<0.040	4/13/94 R.D.
SELENIUM	SW-846 7740	<0.005	4/15/94 D.S.
SILVER	SW-846 6010	0.010	4/13/94 R.D.
THALLIUM	SW-846 7841	<0.002	5/06/94 D.S.
ZINC	SW-846 6010	<0.020	4/13/94 R.D.

APRIL 25, 1994

WAYNE L. COOPER
LABORATORY DIRECTOR

ENVIRONMETRICS
2345 Millpark Drive
Maryland Heights, MO 63043-3529
(314) 427-0550

WOODWARD-CLYDE CONSULTANTS
2318 MILLPARK DRIVE
MARYLAND HEIGHTS, MO 63043

ATTN: CYNTHIA PAVELKA

INVOICE # 26164
PROJECT # C3M11Q1-2.1

ANALYSIS RESULTS

SAMPLE ID: WMW112-10GGWB
LAB ID: 9404353
DATE COLLECTED: 4/07/94 11:00
DATE RECEIVED: 4/07/94

TEST PERFORMED	METHOD OF ANALYSIS	RESULTS	ANALYST
METALS ANALYSIS		TOTAL	
ANTIMONY	SW-846 7041	<0.006 mg/l	4/21/94 D.S.
ARSENIC	SW-846 7060	<0.010	4/15/94 D.S.
BERYLLIUM	SW-846 6010	<0.004	4/13/94 R.D.
CADMIUM	SW-846 6010	<0.005	4/13/94 R.D.
CHROMIUM	SW-846 6010	<0.010	4/13/94 R.D.
COPPER	SW-846 6010	<0.025	4/13/94 R.D.
LEAD	SW-846 7421	<0.003	4/18/94 D.S.
MERCURY	SW-846 7470	<0.0002	4/14/94 B.C.
NICKEL	SW-846 6010	<0.040	4/13/94 R.D.
SELENIUM	SW-846 7740	<0.005	4/15/94 D.S.
SILVER	SW-846 6010	<0.010	4/13/94 R.D.
THALLIUM	SW-846 7841	<0.002	5/06/94 D.S.
ZINC	SW-846 6010	<0.020	4/13/94 R.D.

APRIL 25, 1994

WAYNE L. COOPER
LABORATORY DIRECTOR

ENVIRONMETRICS
2345 Millpark Drive
Maryland Heights, MO 63043-3529
(314) 427-0550

WOODWARD-CLYDE CONSULTANTS
2318 MILLPARK DRIVE
MARYLAND HEIGHTS, MO 63043

ATTN: CYNTHIA PAVELKA

INVOICE # 26164
PROJECT # C3M11Q1-2.1

ANALYSIS RESULTS

SAMPLE ID: WMW102-10GGW
LAB ID: 9404354
DATE COLLECTED: 4/07/94 11:40
DATE RECEIVED: 4/07/94

TEST PERFORMED	METHOD OF ANALYSIS	RESULTS	ANALYST
METALS ANALYSIS		**TOTAL**	
ANTIMONY	**SW-846 7041**	<0.006 mg/l	4/21/94 D.S.
ARSENIC	**SW-846 7060**	<0.010	4/15/94 D.S.
BERYLLIUM	**SW-846 6010**	<0.004	4/13/94 R.D.
CADMIUM	**SW-846 6010**	<0.005	4/13/94 R.D.
CHROMIUM	**SW-846 6010**	<0.010	4/13/94 R.D.
COPPER	**SW-846 6010**	<0.025	4/13/94 R.D.
LEAD	**SW-846 7421**	<0.003	4/18/94 D.S.
MERCURY	**SW-846 7470**	<0.0002	4/14/94 B.C.
NICKEL	**SW-846 6010**	<0.040	4/13/94 R.D.
SELENIUM	**SW-846 7740**	<0.005	4/15/94 D.S.
SILVER	**SW-846 6010**	<0.010	4/13/94 R.D.
THALLIUM	**SW-846 7841**	<0.002	5/06/94 D.S.
ZINC	**SW-846 6010**	<0.020	4/13/94 R.D.

APRIL 25, 1994

WAYNE L. COOPER
LABORATORY DIRECTOR

ENVIRONMETRICS
2345 Millpark Drive
Maryland Heights, MO 63043-3529
(314) 427-0550

WOODWARD-CLYDE CONSULTANTS
2318 MILLPARK DRIVE
MARYLAND HEIGHTS, MO 63043

ATTN: CYNTHIA PAVELKA

INVOICE # 26164
PROJECT # C3M11Q1-2.1

ANALYSIS RESULTS

SAMPLE ID: WMW102-10GGWF
LAB ID: 9404355
DATE COLLECTED: 4/07/94 11:40
DATE RECEIVED: 4/07/94

TEST PERFORMED	METHOD OF ANALYSIS	RESULTS	ANALYST
METALS ANALYSIS		**DISSOLVED**	
ANTIMONY	SW-846 7041	<0.006 mg/l	4/21/94 D.S.
ARSENIC	SW-846 7060	<0.010	4/15/94 D.S.
BERYLLIUM	SW-846 6010	<0.004	4/13/94 R.D.
CADMIUM	SW-846 6010	<0.005	4/13/94 R.D.
CHROMIUM	SW-846 6010	<0.010	4/13/94 R.D.
COPPER	SW-846 6010	<0.025	4/13/94 R.D.
LEAD	SW-846 7421	<0.003	4/18/94 D.S.
MERCURY	SW-846 7470	<0.0002	4/14/94 B.C.
NICKEL	SW-846 6010	<0.040	4/13/94 R.D.
SELENIUM	SW-846 7740	<0.005	4/15/94 D.S.
SILVER	SW-846 6010	<0.010	4/13/94 R.D.
THALLIUM	SW-846 7841	<0.002	5/06/94 D.S.
ZINC	SW-846 6010	<0.020	4/13/94 R.D.

APRIL 25, 1994

WAYNE L. COOPER
LABORATORY DIRECTOR

ENVIRONMETRICS
2345 Millpark Drive
Maryland Heights, MO 63043-3529
(314) 427-0550

WOODWARD-CLYDE CONSULTANTS
2318 MILLPARK DRIVE
MARYLAND HEIGHTS, MO 63043

ATTN: CYNTHIA PAVELKA

INVOICE # 26164
PROJECT # C3M11Q1-2.1

ANALYSIS RESULTS

SAMPLE ID: WMW104920GGW
LAB ID: 9404356
DATE COLLECTED: 4/07/94 13:50
DATE RECEIVED: 4/07/94

TEST PERFORMED	METHOD OF ANALYSIS	RESULTS	ANALYST
METALS ANALYSIS		TOTAL	
ANTIMONY	SW-846 7041	<0.006 mg/l	4/21/94 D.S.
ARSENIC	SW-846 7060	<0.010	4/15/94 D.S.
BERYLLIUM	SW-846 6010	<0.004	4/13/94 R.D.
CADMIUM	SW-846 6010	<0.005	4/13/94 R.D.
CHROMIUM	SW-846 6010	<0.010	4/13/94 R.D.
COPPER	SW-846 6010	<0.025	4/13/94 R.D.
LEAD	SW-846 7421	0.036	4/20/94 D.S.
MERCURY	SW-846 7470	<0.0002	4/14/94 B.C.
NICKEL	SW-846 6010	<0.040	4/13/94 R.D.
SELENIUM	SW-846 7740	<0.005	4/15/94 D.S.
SILVER	SW-846 6010	<0.010	4/13/94 R.D.
THALLIUM	SW-846 7841	<0.002	5/06/94 D.S.
ZINC	SW-846 6010	<0.020	4/13/94 R.D.

APRIL 25, 1994

WAYNE L. COOPER
LABORATORY DIRECTOR

ENVIRONMETRICS
2345 Millpark Drive
Maryland Heights, MO 63043-3529
(314) 427-0550

WOODWARD-CLYDE CONSULTANTS
2318 MILLPARK DRIVE
MARYLAND HEIGHTS, MO 63043

ATTN: CYNTHIA PAVELKA

INVOICE # 26164
PROJECT # C3M11Q1-2.1

ANALYSIS RESULTS

SAMPLE ID: WMW104920GGWF
LAB ID: 9404357
DATE COLLECTED: 4/07/94 13:50
DATE RECEIVED: 4/07/94

TEST PERFORMED	METHOD OF ANALYSIS	RESULTS	ANALYST
METALS ANALYSIS		**DISSOLVED**	
ANTIMONY	SW-846 7041	<0.006 mg/l	4/21/94 D.S.
ARSENIC	SW-846 7060	<0.010	4/15/94 D.S.
BERYLLIUM	SW-846 6010	<0.004	4/13/94 R.D.
CADMIUM	SW-846 6010	<0.005	4/13/94 R.D.
CHROMIUM	SW-846 6010	<0.010	4/13/94 R.D.
COPPER	SW-846 6010	<0.025	4/13/94 R.D.
LEAD	SW-846 7421	<0.003	4/18/94 D.S.
MERCURY	SW-846 7470	<0.0002	4/14/94 B.C.
NICKEL	SW-846 6010	<0.040	4/13/94 R.D.
SELENIUM	SW-846 7740	<0.005	4/15/94 D.S.
SILVER	SW-846 6010	<0.010	4/13/94 R.D.
THALLIUM	SW-846 7841	<0.002	5/06/94 D.S.
ZINC	SW-846 6010	<0.020	4/13/94 R.D.

APRIL 25, 1994

WAYNE L. COOPER
LABORATORY DIRECTOR

ENVIRONMETRICS
2345 Millpark Drive
Maryland Heights, MO 63043-3529
(314) 427-0550

WOODWARD-CLYDE CONSULTANTS
2318 MILLPARK DRIVE
MARYLAND HEIGHTS, MO 63043

ATTN: CYNTHIA PAVELKA

INVOICE # 26164
PROJECT # C3M11Q1-2.1

ANALYSIS RESULTS

SAMPLE ID: WMW104-10GGW
LAB ID: 9404358
DATE COLLECTED: 4/07/94 14:40
DATE RECEIVED: 4/07/94

TEST PERFORMED	METHOD OF ANALYSIS	RESULTS	ANALYST
METALS ANALYSIS		TOTAL	
ANTIMONY	SW-846 7041	<0.006 mg/l	4/21/94 D.S.
ARSENIC	SW-846 7060	<0.010	4/15/94 D.S.
BERYLLIUM	SW-846 6010	<0.004	4/13/94 R.D.
CADMIUM	SW-846 6010	0.006	4/13/94 R.D.
CHROMIUM	SW-846 6010	<0.010	4/13/94 R.D.
COPPER	SW-846 6010	<0.025	4/13/94 R.D.
LEAD	SW-846 7421	0.019	4/18/94 D.S.
MERCURY	SW-846 7470	<0.0002	4/14/94 B.C.
NICKEL	SW-846 6010	<0.040	4/13/94 R.D.
SELENIUM	SW-846 7740	<0.005	4/15/94 D.S.
SILVER	SW-846 6010	<0.010	4/13/94 R.D.
THALLIUM	SW-846 7841	<0.002	5/06/94 D.S.
ZINC	SW-846 6010	<0.020	4/13/94 R.D.

APRIL 25, 1994

WAYNE L. COOPER
LABORATORY DIRECTOR

ENVIRONMETRICS
2345 Millpark Drive
Maryland Heights, MO 63043-3529
(314) 427-0550

WOODWARD-CLYDE CONSULTANTS
2318 MILLPARK DRIVE
MARYLAND HEIGHTS, MO 63043

ATTN: CYNTHIA PAVELKA

INVOICE # 26164
PROJECT # C3M11Q1-2.1

ANALYSIS RESULTS

SAMPLE ID: WMW108-S0GGWF
LAB ID: 9404361
DATE COLLECTED: 4/07/94 15:20
DATE RECEIVED: 4/07/94

TEST PERFORMED	METHOD OF ANALYSIS	RESULTS	ANALYST
METALS ANALYSIS		DISSOLVED	
ANTIMONY	SW-846 7041	<0.006 mg/l	4/21/94 D.S.
ARSENIC	SW-846 7060	<0.010	4/15/94 D.S.
BERYLLIUM	SW-846 6010	<0.004	4/13/94 R.D.
CADMIUM	SW-846 6010	0.144	4/13/94 R.D.
CHROMIUM	SW-846 6010	<0.010	4/13/94 R.D.
COPPER	SW-846 6010	<0.025	4/13/94 R.D.
LEAD	SW-846 7421	<0.003	4/18/94 D.S.
MERCURY	SW-846 7470	<0.0002	4/14/94 B.C.
NICKEL	SW-846 6010	<0.040	4/13/94 R.D.
SELENIUM	SW-846 7740	<0.005	4/15/94 D.S.
SILVER	SW-846 6010	<0.010	4/13/94 R.D.
THALLIUM	SW-846 7841	0.003	5/06/94 D.S.
ZINC	SW-846 6010	0.028	4/13/94 R.D.

APRIL 25, 1994

WAYNE L. COOPER
LABORATORY DIRECTOR

ENVIRONMETRICS
2345 Millpark Drive
Maryland Heights, MO 63043-3529
(314) 427-0550

WOODWARD-CLYDE CONSULTANTS
2318 MILLPARK DRIVE
MARYLAND HEIGHTS, MO 63043

ATTN: CYNTHIA PAVELKA

INVOICE # 26164
PROJECT # C3M11Q1-2.1

ANALYSIS RESULTS

SAMPLE ID: WMW108-D0GGW
LAB ID: 9404362
DATE COLLECTED: 4/07/94 15:50
DATE RECEIVED: 4/07/94

TEST PERFORMED	METHOD OF ANALYSIS	RESULTS	ANALYST
METALS ANALYSIS		TOTAL	
ANTIMONY	SW-846 7041	<0.006 mg/l	4/21/94 D.S.
ARSENIC	SW-846 7060	<0.010	4/15/94 D.S.
BERYLLIUM	SW-846 6010	<0.004	4/13/94 R.D.
CADMIUM	SW-846 6010	5.41	4/13/94 R.D.
CHROMIUM	SW-846 6010	<0.010	4/13/94 R.D.
COPPER	SW-846 6010	<0.025	4/13/94 R.D.
LEAD	SW-846 7421	<0.003	4/20/94 D.S.
MERCURY	SW-846 7470	<0.0002	4/14/94 B.C.
NICKEL	SW-846 6010	0.435	4/13/94 R.D.
SELENIUM	SW-846 7740	<0.005	4/21/94 D.S.
SILVER	SW-846 6010	0.012	4/13/94 R.D.
THALLIUM	SW-846 7841	0.045	5/06/94 D.S.
ZINC	SW-846 6010	23.1	4/13/94 R.D.

APRIL 25, 1994

WAYNE L. COOPER
LABORATORY DIRECTOR

ENVIRONMETRICS
2345 Millpark Drive
Maryland Heights, MO 63043-3529
(314) 427-0550

WOODWARD-CLYDE CONSULTANTS
2318 MILLPARK DRIVE
MARYLAND HEIGHTS, MO 63043

ATTN: CYNTHIA PAVELKA

INVOICE # 26164
PROJECT # C3M11Q1-2.1

ANALYSIS RESULTS

SAMPLE ID: WMW104-10GGWF
LAB ID: 9404359
DATE COLLECTED: 4/07/94 14:40
DATE RECEIVED: 4/07/94

TEST PERFORMED	METHOD OF ANALYSIS	RESULTS	ANALYST
METALS ANALYSIS		DISSOLVED	
ANTIMONY	SW-846 7041	<0.006 mg/l	4/21/94 D.S.
ARSENIC	SW-846 7060	<0.010	4/15/94 D.S.
BERYLLIUM	SW-846 6010	<0.004	4/13/94 R.D.
CADMIUM	SW-846 6010	<0.005	4/13/94 R.D.
CHROMIUM	SW-846 6010	<0.010	4/13/94 R.D.
COPPER	SW-846 6010	<0.025	4/13/94 R.D.
LEAD	SW-846 7421	<0.003	4/18/94 D.S.
MERCURY	SW-846 7470	<0.0002	4/14/94 B.C.
NICKEL	SW-846 6010	<0.040	4/13/94 R.D.
SELENIUM	SW-846 7740	<0.005	4/15/94 D.S.
SILVER	SW-846 6010	<0.010	4/13/94 R.D.
THALLIUM	SW-846 7841	<0.002	5/06/94 D.S.
ZINC	SW-846 6010	<0.020	4/13/94 R.D.

APRIL 25, 1994

WAYNE L. COOPER
LABORATORY DIRECTOR

ENVIRONMETRICS
2345 Millpark Drive
Maryland Heights, MO 63043-3529
(314) 427-0550

WOODWARD-CLYDE CONSULTANTS
2318 MILLPARK DRIVE
MARYLAND HEIGHTS, MO 63043

ATTN: CYNTHIA PAVELKA

INVOICE # 26164
PROJECT # C3M11Q1-2.1

ANALYSIS RESULTS

SAMPLE ID: WMW108-S0GGW
LAB ID: 9404360
DATE COLLECTED: 4/07/94 15:20
DATE RECEIVED: 4/07/94

TEST PERFORMED	METHOD OF ANALYSIS	RESULTS	ANALYST
METALS ANALYSIS		**TOTAL**	
ANTIMONY	SW-846 7041	0.007 mg/l	4/21/94 D.S.
ARSENIC	SW-846 7060	0.017	4/15/94 D.S.
BERYLLIUM	SW-846 6010	<0.004	4/13/94 R.D.
CADMIUM	SW-846 6010	0.180	4/13/94 R.D.
CHROMIUM	SW-846 6010	0.043	4/13/94 R.D.
COPPER	SW-846 6010	0.039	4/13/94 R.D.
LEAD	SW-846 6010	0.312	4/13/94 R.D.
MERCURY	SW-846 7470	<0.0002	4/14/94 B.C.
NICKEL	SW-846 6010	0.075	4/13/94 R.D.
SELENIUM	SW-846 7740	<0.005	4/21/94 D.S.
SILVER	SW-846 6010	<0.010	4/13/94 R.D.
THALLIUM	SW-846 7841	0.008	5/06/94 D.S.
ZINC	SW-846 6010	0.177	4/13/94 R.D.

APRIL 25, 1994

WAYNE E. COOPER
LABORATORY DIRECTOR

ENVIRONMETRICS
2345 Millpark Drive
Maryland Heights, MO 63043-3529
(314) 427-0550

WOODWARD-CLYDE CONSULTANTS
2318 MILLPARK DRIVE
MARYLAND HEIGHTS, MO 63043

ATTN: CYNTHIA PAVELKA

INVOICE # 26164
PROJECT # C3M11Q1-2.1

ANALYSIS RESULTS

SAMPLE ID: WMW108-D0GGWF
LAB ID: 9404363
DATE COLLECTED: 4/07/94 15:50
DATE RECEIVED: 4/07/94

TEST PERFORMED	METHOD OF ANALYSIS	RESULTS	ANALYST
METALS ANALYSIS		DISSOLVED	
ANTIMONY	SW-846 7041	<0.006 mg/l	4/21/94 D.S.
ARSENIC	SW-846 7060	<0.010	4/15/94 D.S.
BERYLLIUM	SW-846 6010	<0.004	4/13/94 R.D.
CADMIUM	SW-846 6010	5.08	4/13/94 R.D.
CHROMIUM	SW-846 6010	<0.010	4/13/94 R.D.
COPPER	SW-846 6010	<0.025	4/13/94 R.D.
LEAD	SW-846 7421	<0.003	4/20/94 D.S.
MERCURY	SW-846 7470	<0.0002	4/14/94 B.C.
NICKEL	SW-846 6010	0.396	4/13/94 R.D.
SELENIUM	SW-846 7740	<0.005	4/21/94 D.S.
SILVER	SW-846 6010	<0.010	4/13/94 R.D.
THALLIUM	SW-846 7841	0.043	5/06/94 D.S.
ZINC	SW-846 6010	21.5	4/13/94 R.D.

APRIL 25, 1994

WAYNE L. COOPER
LABORATORY DIRECTOR

ENVIRONMETRICS
2345 Millpark Drive
Maryland Heights, MO 63043-3529
(314) 427-0550

WOODWARD-CLYDE CONSULTANTS
2318 MILLPARK DRIVE
MARYLAND HEIGHTS, MO 63043

ATTN: CYNTHIA PAVELKA

INVOICE # 26164
PROJECT # C3M11Q1-2.1

ANALYSIS RESULTS

SAMPLE ID: WMW109920GGW
LAB ID: 9404364
DATE COLLECTED: 4/06/94 12:30
DATE RECEIVED: 4/06/94

TEST PERFORMED	METHOD OF ANALYSIS	RESULTS	ANALYST
METALS ANALYSIS		TOTAL	
ANTIMONY	SW-846 7041	<0.006 mg/l	4/21/94 D.S.
ARSENIC	SW-846 7060	<0.010	4/15/94 D.S.
BERYLLIUM	SW-846 6010	<0.004	4/13/94 R.D.
CADMIUM	SW-846 6010	<0.005	4/13/94 R.D.
CHROMIUM	SW-846 6010	0.011	4/13/94 R.D.
COPPER	SW-846 6010	<0.025	4/13/94 R.D.
LEAD	SW-846 7421	<0.003	4/18/94 D.S.
MERCURY	SW-846 7470	<0.0002	4/14/94 B.C.
NICKEL	SW-846 6010	<0.040	4/13/94 R.D.
SELENIUM	SW-846 7740	<0.005	4/15/94 D.S.
SILVER	SW-846 6010	<0.010	4/13/94 R.D.
THALLIUM	SW-846 7841	<0.002	5/06/94 D.S.
ZINC	SW-846 6010	<0.020	4/13/94 R.D.

APRIL 25, 1994

WAYNE L. COOPER
LABORATORY DIRECTOR

WOODWARD-CLYDE CONSULTANTS
2318 MILLPARK DRIVE
MARYLAND HEIGHTS, MO 63043

ATTN: CYNTHIA PAVELKA

INVOICE # 26164
PROJECT # C3M11Q1-2.1

ENVIRONMETRICS
2345 Millpark Drive
Maryland Heights, MO 63043-3529
(314) 427-0550

ANALYSIS RESULTS

SAMPLE ID: WMW110-10GGW
LAB ID: 9404365
DATE COLLECTED: 4/06/94 15:35
DATE RECEIVED: 4/06/94

TEST PERFORMED	METHOD OF ANALYSIS	Qualifier	RESULTS	ANALYST
METALS ANALYSIS			TOTAL	
ANTIMONY	SW-846 7041		<0.006 mg/l	4/21/94 D.S.
ARSENIC	SW-846 7060		<0.010	4/15/94 D.S.
BERYLLIUM	SW-846 6010		<0.004	4/13/94 R.D.
CADMIUM	SW-846 6010		<0.005	4/13/94 R.D.
CHROMIUM	SW-846 6010		<0.010	4/13/94 R.D.
COPPER	SW-846 6010		<0.025	4/13/94 R.D.
LEAD	SW-846 7421		<0.003	4/18/94 D.S.
MERCURY	SW-846 7470		<0.0002	4/14/94 B.C.
NICKEL	SW-846 6010		<0.040	4/13/94 R.D.
SELENIUM	SW-846 7740	J	<0.005	4/15/94 D.S.
SILVER	SW-846 6010		<0.010	4/13/94 R.D.
THALLIUM	SW-846 7841		<0.002	5/06/94 D.S.
ZINC	SW-846 6010		<0.020	4/13/94 R.D.

APRIL 25, 1994

WAYNE L. COOPER
LABORATORY DIRECTOR

WOODWARD-CLYDE CONSULTANTS
2318 MILLPARK DRIVE
MARYLAND HEIGHTS, MO 63043

ATTN: CYNTHIA PAVELKA

INVOICE # 26164
PROJECT # C3M11Q1-2.1

ENVIRONMETRICS
2345 Millpark Drive
Maryland Heights, MO 63043-3529
(314) 427-0550

QUALITY ASSURANCE QUALITY CONTROL REPORT

MATRIX SPIKE/MATRIX SPIKE DUPLICATE
GRAPHITE FURNACE ATOMIC ABSORPTION

SAMPLE ID: WMW110-10GGW
LAB ID: 9404366 & 9404367
DATE COLLECTED: 4/06/94 15:35
DATE RECEIVED: 4/06/94

ELEMENT	SAMPLE RESULT	SPIKE LEVEL	SPIKE RESULT	% REC	SPIKE RESULT	% REC.	RPD
ANTIMONY	<0.006	0.100	0.093	93	0.091	91	2
ARSENIC	<0.010	0.040	0.042	105	0.042	105	0
LEAD	<0.003	0.020	0.020	100	0.021	105	5
SELENIUM	<0.005	0.010	0.0074	74	0.0076	76	3
THALLIUM	<0.002	0.050	0.0584	117	0.0604	121	3

WOODWARD-CLYDE CONSULTANTS
2318 MILLPARK DRIVE
MARYLAND HEIGHTS, MO 63043

ATTN: CYNTHIA PAVELKA

ENVIRONMETRICS
2345 Millpark Drive
Maryland Heights, MO 63043-3529
(314) 427-0550

INVOICE # 26164
PROJECT # C3M11Q1-2.1

QUALITY ASSURANCE QUALITY CONTROL REPORT

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

SAMPLE ID: WMW110-10GGW
LAB ID: 9404366 & 9404367
DATE COLLECTED: 4/06/94 15:35
DATE RECEIVED: 4/06/94

ELEMENT	SAMPLE RESULT	SPIKE LEVEL	SPIKE RESULT	% REC	SPIKE RESULT	% REC.	RPD
BERYLLIUM	<0.004	0.100	0.095	95	0.961	96	1
CADMIUM	<0.005	0.100	0.084	84	0.834	83	1
CHROMIUM	<0.010	0.400	0.389	97	0.393	98	1
COPPER	<0.025	0.500	0.486	97	0.485	97	0
MERCURY	<0.0002	0.0020	0.0020	100	0.0020	100	0
NICKEL	<0.040	1.000	0.877	88	0.883	88	0
SILVER	<0.010	0.100	0.090	90	0.091	91	1
ZINC	<0.020	1.000	0.966	97	0.966	97	0

WOODWARD-CLYDE CONSULTANTS
2318 MILLPARK DRIVE
MARYLAND HEIGHTS, MO 63043

ATTN: CYNTHIA PAVELKA

INVOICE # 26164
PROJECT # C3M11Q1-2.1

ENVIRONMETRICS
2345 Millpark Drive
Maryland Heights, MO 63043-3529
(314) 427-0550

ANALYSIS RESULTS

SAMPLE ID: WMW109-10GGW
LAB ID: 9404368
DATE COLLECTED: 4/06/94 13:30
DATE RECEIVED: 4/06/94

TEST PERFORMED	METHOD OF ANALYSIS	RESULTS	ANALYST
METALS ANALYSIS		TOTAL	
ANTIMONY	SW-846 7041	<0.006 mg/l	4/21/94 D.S.
ARSENIC	SW-846 7060	<0.010	4/15/94 D.S.
BERYLLIUM	SW-846 6010	<0.004	4/13/94 R.D.
CADMIUM	SW-846 6010	<0.005	4/13/94 R.D.
CHROMIUM	SW-846 6010	<0.010	4/13/94 R.D.
COPPER	SW-846 6010	<0.025	4/13/94 R.D.
LEAD	SW-846 7421	<0.003	4/18/94 D.S.
MERCURY	SW-846 7470	<0.0002	4/14/94 B.C.
NICKEL	SW-846 6010	<0.040	4/13/94 R.D.
SELENIUM	SW-846 7740	<0.005	4/15/94 D.S.
SILVER	SW-846 6010	<0.010	4/13/94 R.D.
THALLIUM	SW-846 7841	<0.002	5/06/94 D.S.
ZINC	SW-846 6010	<0.020	4/13/94 R.D.

APRIL 25, 1994

WAYNE L. COOPER
LABORATORY DIRECTOR

WOODWARD-CLYDE CONSULTANTS
2318 MILLPARK DRIVE
MARYLAND HEIGHTS, MO 63043

ATTN: CYNTHIA PAVELKA

INVOICE # 26164
PROJECT # C3M11Q1-2.1

ENVIRONMETRICS
2345 Millpark Drive
Maryland Heights, MO 63043-3529
(314) 427-0550

ANALYSIS RESULTS

SAMPLE ID: WMW103910GGW
LAB ID: 9404369
DATE COLLECTED: 4/06/94 16:40
DATE RECEIVED: 4/06/94

TEST PERFORMED	METHOD OF ANALYSIS	RESULTS	ANALYST
METALS ANALYSIS		TOTAL	
ANTIMONY	SW-846 7041	<0.006 mg/l	4/21/94 D.S.
ARSENIC	SW-846 7060	<0.010	4/15/94 D.S.
BERYLLIUM	SW-846 6010	<0.004	4/13/94 R.D.
CADMIUM	SW-846 6010	0.005	4/13/94 R.D.
CHROMIUM	SW-846 6010	<0.010	4/13/94 R.D.
COPPER	SW-846 6010	<0.025	4/13/94 R.D.
LEAD	SW-846 7421	<0.003	4/18/94 D.S.
MERCURY	SW-846 7470	<0.0002	4/14/94 B.C.
NICKEL	SW-846 6010	<0.040	4/13/94 R.D.
SELENIUM	SW-846 7740	<0.005	4/15/94 D.S.
SILVER	SW-846 6010	0.012	4/13/94 R.D.
THALLIUM	SW-846 7841	<0.002	5/06/94 D.S.
ZINC	SW-846 6010	<0.020	4/13/94 R.D.

APRIL 25, 1994

WAYNE L. COOPER
LABORATORY DIRECTOR

WOODWARD-CLYDE CONSULTANTS
2318 MILLPARK DRIVE
MARYLAND HEIGHTS, MO 63043

ATTN: CYNTHIA PAVELKA

INVOICE # 26164
PROJECT # C3M11Q1-2.1

ENVIRONMETRICS
2345 Millpark Drive
Maryland Heights, MO 63043-3529
(314) 427-0550

ANALYSIS RESULTS

SAMPLE ID: WMW105-S0GGW
LAB ID: 9404524
DATE COLLECTED: 4/08/94 8:50
DATE RECEIVED: 4/08/94

TEST PERFORMED	METHOD OF ANALYSIS	RESULTS	ANALYST
METALS ANALYSIS		TOTAL	
ANTIMONY	SW-846 7041	<0.006 mg/l	4/21/94 D.S.
ARSENIC	SW-846 7060	<0.010	4/15/94 D.S.
BERYLLIUM	SW-846 6010	<0.004	4/14/94 R.D.
CADMIUM	SW-846 6010	<0.005	4/18/94 R.D.
CHROMIUM	SW-846 6010	<0.010	4/14/94 R.D.
COPPER	SW-846 6010	<0.025	4/14/94 R.D.
LEAD	SW-846 7421	0.008	4/18/94 D.S.
MERCURY	SW-846 7470	<0.0002	4/14/94 B.C.
NICKEL	SW-846 6010	<0.040	4/14/94 R.D.
SELENIUM	SW-846 7740	0.011	4/21/94 D.S.
SILVER	SW-846 6010	<0.010	4/14/94 R.D.
THALLIUM	SW-846 7841	<0.002	5/06/94 D.S.
ZINC	SW-846 6010	<0.020	4/14/94 R.D.

APRIL 25, 1994

WAYNE L. COOPER
LABORATORY DIRECTOR

WOODWARD-CLYDE CONSULTANTS
2318 MILLPARK DRIVE
MARYLAND HEIGHTS, MO 63043

ATTN: CYNTHIA PAVELKA

INVOICE # 26164
PROJECT # C3M11Q1-2.1

ENVIRONMETRICS
2345 Millpark Drive
Maryland Heights, MO 63043-3529
(314) 427-0550

ANALYSIS RESULTS

SAMPLE ID: WMW105-S0GGWF
LAB ID: 9404525
DATE COLLECTED: 4/08/94 8:50
DATE RECEIVED: 4/08/94

TEST PERFORMED	METHOD OF ANALYSIS	RESULTS	ANALYST
METALS ANALYSIS		**DISSOLVED**	
ANTIMONY	SW-846 7041	<0.006 mg/l	4/21/94 D.S.
ARSENIC	SW-846 7060	<0.010	4/15/94 D.S.
BERYLLIUM	SW-846 6010	<0.004	4/14/94 R.D.
CADMIUM	SW-846 6010	<0.005	4/18/94 R.D.
CHROMIUM	SW-846 6010	<0.010	4/14/94 R.D.
COPPER	SW-846 6010	<0.025	4/14/94 R.D.
LEAD	SW-846 7421	<0.003	4/18/94 D.S.
MERCURY	SW-846 7470	<0.0002	4/14/94 B.C.
NICKEL	SW-846 6010	<0.040	4/14/94 R.D.
SELENIUM	SW-846 7740	0.014	4/21/94 D.S.
SILVER	SW-846 6010	<0.010	4/14/94 R.D.
THALLIUM	SW-846 7841	<0.002	5/06/94 D.S.
ZINC	SW-846 6010	<0.020	4/14/94 R.D.

APRIL 25, 1994

WAYNE L. COOPER
LABORATORY DIRECTOR

WOODWARD-CLYDE CONSULTANTS
2318 MILLPARK DRIVE
MARYLAND HEIGHTS, MO 63043

ATTN: CYNTHIA PAVELKA

INVOICE # 26164
PROJECT # C3M11Q1-2.1

ENVIRONMETRICS
2345 Millpark Drive
Maryland Heights, MO 63043-3529
(314) 427-0550

ANALYSIS RESULTS

SAMPLE ID: WMW107-S0GGW
LAB ID: 9404526
DATE COLLECTED: 4/08/94 10:10
DATE RECEIVED: 4/08/94

TEST PERFORMED	METHOD OF ANALYSIS	RESULTS	ANALYST
METALS ANALYSIS		TOTAL	
ANTIMONY	SW-846 7041	<0.006 mg/l	4/21/94 D.S.
ARSENIC	SW-846 7060	<0.010	4/15/94 D.S.
BERYLLIUM	SW-846 6010	<0.004	4/14/94 R.D.
CADMIUM	SW-846 6010	<0.005	4/18/94 R.D.
CHROMIUM	SW-846 6010	0.017	4/14/94 R.D.
COPPER	SW-846 6010	<0.025	4/14/94 R.D.
LEAD	SW-846 7421	0.007	4/18/94 D.S.
MERCURY	SW-846 7470	<0.0002	4/14/94 B.C.
NICKEL	SW-846 6010	<0.040	4/14/94 R.D.
SELENIUM	SW-846 7740	<0.005	4/15/94 D.S.
SILVER	SW-846 6010	<0.010	4/14/94 R.D.
THALLIUM	SW-846 7841	<0.002	5/06/94 D.S.
ZINC	SW-846 6010	0.041	4/14/94 R.D.

APRIL 25, 1994

WAYNE L. COOPER
LABORATORY DIRECTOR

WOODWARD-CLYDE CONSULTANTS
2318 MILLPARK DRIVE
MARYLAND HEIGHTS, MO 63043

ATTN: CYNTHIA PAVELKA

INVOICE # 26164
PROJECT # C3M11Q1-2.1

ENVIRONMETRICS
2345 Millpark Drive
Maryland Heights, MO 63043-3529
(314) 427-0550

ANALYSIS RESULTS

SAMPLE ID: WMW107-S0GGWF
LAB ID: 9404527
DATE COLLECTED: 4/08/94 10:05
DATE RECEIVED: 4/08/94

TEST PERFORMED	METHOD OF ANALYSIS	RESULTS	ANALYST
METALS ANALYSIS		DISSOLVED	
ANTIMONY	SW-846 7041	<0.006 mg/l	4/21/94 D.S.
ARSENIC	SW-846 7060	<0.010	4/15/94 D.S.
BERYLLIUM	SW-846 6010	<0.004	4/14/94 R.D.
CADMIUM	SW-846 6010	<0.005	4/18/94 R.D.
CHROMIUM	SW-846 6010	<0.010	4/14/94 R.D.
COPPER	SW-846 6010	<0.025	4/14/94 R.D.
LEAD	SW-846 7421	<0.003	4/18/94 D.S.
MERCURY	SW-846 7470	<0.0002	4/14/94 B.C.
NICKEL	SW-846 6010	<0.040	4/14/94 R.D.
SELENIUM	SW-846 7740	<0.005	4/15/94 D.S.
SILVER	SW-846 6010	<0.010	4/14/94 R.D.
THALLIUM	SW-846 7841	<0.002	5/06/94 D.S.
ZINC	SW-846 6010	<0.020	4/14/94 R.D.

APRIL 25, 1994

WAYNE L. COOPER
LABORATORY DIRECTOR

WOODWARD-CLYDE CONSULTANTS
2318 MILLPARK DRIVE
MARYLAND HEIGHTS, MO 63043

ATTN: CYNTHIA PAVELKA

INVOICE # 26164
PROJECT # C3M11Q1-2.1

ENVIRONMETRICS
2345 Millpark Drive
Maryland Heights, MO 63043-3529
(314) 427-0550

ANALYSIS RESULTS

SAMPLE ID: WMW107-D0GGWF
LAB ID: 9404528
DATE COLLECTED: 4/08/94 12:45
DATE RECEIVED: 4/08/94

TEST PERFORMED	METHOD OF ANALYSIS	RESULTS	ANALYST
METALS ANALYSIS		**DISSOLVED**	
ANTIMONY	**SW-846 7041**	<0.006 mg/l	4/21/94 D.S.
ARSENIC	**SW-846 7060**	<0.010	4/15/94 D.S.
BERYLLIUM	**SW-846 6010**	<0.004	4/14/94 R.D.
CADMIUM	**SW-846 6010**	<0.005	4/18/94 R.D.
CHROMIUM	**SW-846 6010**	<0.010	4/14/94 R.D.
COPPER	**SW-846 6010**	<0.025	4/14/94 R.D.
LEAD	**SW-846 7421**	<0.003	4/18/94 D.S.
MERCURY	**SW-846 7470**	<0.0002	4/14/94 B.C.
NICKEL	**SW-846 6010**	<0.040	4/14/94 R.D.
SELENIUM	**SW-846 7740**	<0.005	4/15/94 D.S.
SILVER	**SW-846 6010**	<0.010	4/14/94 R.D.
THALLIUM	**SW-846 7841**	<0.002	5/06/94 D.S.
ZINC	**SW-846 6010**	<0.020	4/14/94 R.D.

APRIL 25, 1994

WAYNE L. COOPER
LABORATORY DIRECTOR

WOODWARD-CLYDE CONSULTANTS
2318 MILLPARK DRIVE
MARYLAND HEIGHTS, MO 63043

ATTN: CYNTHIA PAVELKA

INVOICE # 26164
PROJECT # C3M11Q1-2.1

ENVIRONMETRICS
2345 Millpark Drive
Maryland Heights, MO 63043-3529
(314) 427-0550

ANALYSIS RESULTS

SAMPLE ID: WMW107-D0GGWDF
LAB ID: 9404529
DATE COLLECTED: 4/08/94 12:45
DATE RECEIVED: 4/08/94

TEST PERFORMED	METHOD OF ANALYSIS	RESULTS	ANALYST
METALS ANALYSIS		DISSOLVED	
ANTIMONY	SW-846 7041	<0.006 mg/l	4/21/94 D.S.
ARSENIC	SW-846 7060	<0.010	4/15/94 D.S.
BERYLLIUM	SW-846 6010	<0.004	4/14/94 R.D.
CADMIUM	SW-846 6010	<0.005	4/18/94 R.D.
CHROMIUM	SW-846 6010	<0.010	4/14/94 R.D.
COPPER	SW-846 6010	<0.025	4/14/94 R.D.
LEAD	SW-846 7421	<0.003	4/18/94 D.S.
MERCURY	SW-846 7470	<0.0002	4/14/94 B.C.
NICKEL	SW-846 6010	<0.040	4/14/94 R.D.
SELENIUM	SW-846 7740	<0.005	4/15/94 D.S.
SILVER	SW-846 6010	<0.010	4/14/94 R.D.
THALLIUM	SW-846 7841	<0.002	5/06/94 D.S.
ZINC	SW-846 6010	<0.020	4/14/94 R.D.

APRIL 25, 1994

WAYNE L. COOPER
LABORATORY DIRECTOR

WOODWARD-CLYDE CONSULTANTS
2318 MILLPARK DRIVE
MARYLAND HEIGHTS, MO 63043

ATTN: CYNTHIA PAVELKA

INVOICE # 26164
PROJECT # C3M11Q1-2.1

ENVIRONMETRICS
2345 Millpark Drive
Maryland Heights, MO 63043-3529
(314) 427-0550

ANALYSIS RESULTS

SAMPLE ID: WMW107-D0GGW
LAB ID: 9404530
DATE COLLECTED: 4/08/94 12:50
DATE RECEIVED: 4/08/94

TEST PERFORMED	METHOD OF ANALYSIS	RESULTS	ANALYST
METALS ANALYSIS		TOTAL	
ANTIMONY	SW-846 7041	<0.006 mg/l	4/21/94 D.S.
ARSENIC	SW-846 7060	<0.010	4/15/94 D.S.
BERYLLIUM	SW-846 6010	<0.004	4/14/94 R.D.
CADMIUM	SW-846 6010	<0.005	4/18/94 R.D.
CHROMIUM	SW-846 6010	<0.010	4/14/94 R.D.
COPPER	SW-846 6010	<0.025	4/14/94 R.D.
LEAD	SW-846 7421	<0.003	4/18/94 D.S.
MERCURY	SW-846 7470	<0.0002	4/14/94 B.C.
NICKEL	SW-846 6010	<0.040	4/14/94 R.D.
SELENIUM	SW-846 7740	<0.005	4/15/94 D.S.
SILVER	SW-846 6010	<0.010	4/14/94 R.D.
THALLIUM	SW-846 7841	<0.002	5/06/94 D.S.
ZINC	SW-846 6010	<0.020	4/14/94 R.D.

APRIL 25, 1994

WAYNE L. COOPER
LABORATORY DIRECTOR

WOODWARD-CLYDE CONSULTANTS
2318 MILLPARK DRIVE
MARYLAND HEIGHTS, MO 63043

ATTN: CYNTHIA PAVELKA

INVOICE # 26164
PROJECT # C3M11Q1-2.1

ENVIRONMETRICS
2345 Millpark Drive
Maryland Heights, MO 63043-3529
(314) 427-0550

ANALYSIS RESULTS

SAMPLE ID: WMW107-D0GGWD
LAB ID: 9404531
DATE COLLECTED: 4/08/94 12:50
DATE RECEIVED: 4/08/94

TEST PERFORMED	METHOD OF ANALYSIS	RESULTS	ANALYST
METALS ANALYSIS		TOTAL	
ANTIMONY	SW-846 7041	<0.006 mg/l	4/21/94 D.S.
ARSENIC	SW-846 7060	<0.010	4/15/94 D.S.
BERYLLIUM	SW-846 6010	<0.004	4/14/94 R.D.
CADMIUM	SW-846 6010	<0.005	4/18/94 R.D.
CHROMIUM	SW-846 6010	<0.010	4/14/94 R.D.
COPPER	SW-846 6010	<0.025	4/14/94 R.D.
LEAD	SW-846 7421	<0.003	4/18/94 D.S.
MERCURY	SW-846 7470	<0.0002	4/14/94 B.C.
NICKEL	SW-846 6010	<0.040	4/14/94 R.D.
SELENIUM	SW-846 7740	<0.005	4/15/94 D.S.
SILVER	SW-846 6010	<0.010	4/14/94 R.D.
THALLIUM	SW-846 7841	<0.002	5/06/94 D.S.
ZINC	SW-846 6010	<0.020	4/14/94 R.D.

APRIL 25, 1994

WAYNE L. COOPER
LABORATORY DIRECTOR

WOODWARD-CLYDE CONSULTANTS
2318 MILLPARK DRIVE
MARYLAND HEIGHTS, MO 63043

ATTN: CYNTHIA PAVELKA

INVOICE # 26164
PROJECT # C3M11Q1-2.1

ENVIRONMETRICS
2345 Millpark Drive
Maryland Heights, MO 63043-3529
(314) 427-0550

ANALYSIS RESULTS

SAMPLE ID: WMW113-10GGWB
LAB ID: 9404532
DATE COLLECTED: 4/08/94 13:10
DATE RECEIVED: 4/08/94

TEST PERFORMED	METHOD OF ANALYSIS	RESULTS	ANALYST
METALS ANALYSIS		TOTAL	
ANTIMONY	SW-846 7041	<0.006 mg/l	4/21/94 D.S.
ARSENIC	SW-846 7060	<0.010	4/15/94 D.S.
BERYLLIUM	SW-846 6010	<0.004	4/14/94 R.D.
CADMIUM	SW-846 6010	<0.005	4/18/94 R.D.
CHROMIUM	SW-846 6010	<0.010	4/14/94 R.D.
COPPER	SW-846 6010	<0.025	4/14/94 R.D.
LEAD	SW-846 7421	<0.003	4/18/94 D.S.
MERCURY	SW-846 7470	<0.0002	4/14/94 B.C.
NICKEL	SW-846 6010	<0.040	4/14/94 R.D.
SELENIUM	SW-846 7740	<0.005	4/15/94 D.S.
SILVER	SW-846 6010	<0.010	4/14/94 R.D.
THALLIUM	SW-846 7841	<0.002	5/06/94 D.S.
ZINC	SW-846 6010	<0.020	4/14/94 R.D.

APRIL 25, 1994

WAYNE L. COOPER
LABORATORY DIRECTOR

WOODWARD-CLYDE CONSULTANTS
2318 MILLPARK DRIVE
MARYLAND HEIGHTS, MO 63043

ATTN: CYNTHIA PAVELKA

INVOICE # 26164
PROJECT # C3M11Q1-2.1

ENVIRONMETRICS
2345 Millpark Drive
Maryland Heights, MO 63043-3529
(314) 427-0550

ANALYSIS RESULTS

SAMPLE ID: WMW106-S0GGWF
LAB ID: 9404533
DATE COLLECTED: 4/08/94 13:35
DATE RECEIVED: 4/08/94

TEST PERFORMED	METHOD OF ANALYSIS	RESULTS	ANALYST
METALS ANALYSIS		DISSOLVED	
ANTIMONY	SW-846 7041	<0.006 mg/l	4/21/94 D.S.
ARSENIC	SW-846 7060	<0.010	4/15/94 D.S.
BERYLLIUM	SW-846 6010	<0.004	4/14/94 R.D.
CADMIUM	SW-846 6010	<0.005	4/18/94 R.D.
CHROMIUM	SW-846 6010	<0.010	4/14/94 R.D.
COPPER	SW-846 6010	<0.025	4/14/94 R.D.
LEAD	SW-846 7421	<0.003	4/18/94 D.S.
MERCURY	SW-846 7470	<0.0002	4/14/94 B.C.
NICKEL	SW-846 6010	<0.040	4/14/94 R.D.
SELENIUM	SW-846 7740	<0.005	4/15/94 D.S.
SILVER	SW-846 6010	<0.010	4/14/94 R.D.
THALLIUM	SW-846 7841	<0.002	5/06/94 D.S.
ZINC	SW-846 6010	<0.020	4/14/94 R.D.

APRIL 25, 1994

WAYNE L. COOPER
LABORATORY DIRECTOR

WOODWARD-CLYDE CONSULTANTS
2318 MILLPARK DRIVE
MARYLAND HEIGHTS, MO 63043

ATTN: CYNTHIA PAVELKA

INVOICE # 26164
PROJECT # C3M11Q1-2.1

ENVIRONMETRICS
2345 Millpark Drive
Maryland Heights, MO 63043-3529
(314) 427-0550

ANALYSIS RESULTS

SAMPLE ID: WMW106-S0GGW
LAB ID: 9404534
DATE COLLECTED: 4/08/94 13:40
DATE RECEIVED: 4/08/94

TEST PERFORMED	METHOD OF ANALYSIS	RESULTS	ANALYST
METALS ANALYSIS		TOTAL	
ANTIMONY	SW-846 7041	0.008 mg/l	4/21/94 D.S.
ARSENIC	SW-846 7060	0.081	4/21/94 D.S.
BERYLLIUM	SW-846 6010	0.007	4/14/94 R.D.
CADMIUM	SW-846 6010	0.005	4/18/94 R.D.
CHROMIUM	SW-846 6010	0.183	4/14/94 R.D.
COPPER	SW-846 6010	0.179	4/14/94 R.D.
LEAD	SW-846 6010	0.776	4/14/94 R.D.
MERCURY	SW-846 7470	0.0006	4/14/94 B.C.
NICKEL	SW-846 6010	0.220	4/14/94 R.D.
SELENIUM	SW-846 7740	<0.005	4/21/94 D.S.
SILVER	SW-846 6010	<0.010	4/14/94 R.D.
THALLIUM	SW-846 7841	0.003	5/06/94 D.S.
ZINC	SW-846 6010	0.876	4/14/94 R.D.

APRIL 25, 1994

WAYNE L. COOPER
LABORATORY DIRECTOR

WOODWARD-CLYDE CONSULTANTS
2318 MILLPARK DRIVE
MARYLAND HEIGHTS, MO 63043

ATTN: CYNTHIA PAVELKA

INVOICE # 26164
PROJECT # C3M11Q1-2.1

ENVIRONMETRICS
2345 Millpark Drive
Maryland Heights, MO 63043-3529
(314) 427-0550

ANALYSIS RESULTS

SAMPLE ID: WMW106-D0GGW
LAB ID: 9404535
DATE COLLECTED: 4/08/94 14:05
DATE RECEIVED: 4/08/94

TEST PERFORMED	METHOD OF ANALYSIS	Qualifier	RESULTS TOTAL	ANALYST
METALS ANALYSIS				
ANTIMONY	SW-846 7041		<0.006 mg/l	4/21/94 D.S.
ARSENIC	SW-846 7060		<0.010	4/15/94 D.S.
BERYLLIUM	SW-846 6010		<0.004	4/14/94 R.D.
CADMIUM	SW-846 6010		<0.005	4/18/94 R.D.
CHROMIUM	SW-846 6010		<0.010	4/14/94 R.D.
COPPER	SW-846 6010		<0.025	4/14/94 R.D.
LEAD	SW-846 7421		<0.003	4/18/94 D.S.
MERCURY	SW-846 7470		<0.0002	4/14/94 B.C.
NICKEL	SW-846 6010		<0.040	4/14/94 R.D.
SELENIUM	SW-846 7740	J	0.005	4/15/94 D.S.
SILVER	SW-846 6010		<0.010	4/14/94 R.D.
THALLIUM	SW-846 7841		<0.002	5/06/94 D.S.
ZINC	SW-846 6010		0.026	4/14/94 R.D.

APRIL 25, 1994

WAYNE L. COOPER
LABORATORY DIRECTOR

WOODWARD-CLYDE CONSULTANTS
2318 MILLPARK DRIVE
MARYLAND HEIGHTS, MO 63043

ATTN: CYNTHIA PAVELKA

INVOICE # 26164
PROJECT # C3M11Q1-2.1

ENVIRONMETRICS
2345 Millpark Drive
Maryland Heights, MO 63043-3529
(314) 427-0550

QUALITY ASSURANCE QUALITY CONTROL REPORT

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

SAMPLE ID: WMW106-D0GGWX (MS/MSD for Sample ID: WMW106-DØ6GW)
LAB ID: 9404537 & 9404538
DATE COLLECTED: 4/08/94 14:05
DATE RECEIVED: 4/08/94

ELEMENT	SAMPLE RESULT	SPIKE LEVEL	SPIKE RESULT	% REC	SPIKE RESULT	% REC.	RPD
BERYLLIUM	<0.004	0.100	0.961	96	0.906	91	5
CADMIUM	<0.005	0.100	0.0964	96	0.0924	92	4
CHROMIUM	<0.010	0.400	0.389	97	0.371	93	4
COPPER	<0.025	0.500	0.489	98	0.460	92	6
MERCURY	<0.0002	0.0020	0.0022	110	0.0021	105	5
NICKEL	<0.040	1.000	0.935	94	0.906	91	3
SILVER	<0.010	0.100	0.092	92	0.091	91	1
ZINC	0.026	1.000	0.975	95	0.926	90	5

WOODWARD-CLYDE CONSULTANTS
2318 MILLPARK DRIVE
MARYLAND HEIGHTS, MO 63043

ATTN: CYNTHIA PAVELKA

ENVIRONMETRICS
2345 Millpark Drive
Maryland Heights, MO 63043-3529
(314) 427-0550

INVOICE # 26164
PROJECT # C3M11Q1-2.1

QUALITY ASSURANCE QUALITY CONTROL REPORT

MATRIX SPIKE/MATRIX SPIKE DUPLICATE
GRAPHITE FURNACE ATOMIC ABSORPTION

SAMPLE ID: WMW106-D0GGWM (MS/MSD for Sample ID: WMW106-D0GGW)
LAB ID: 9404537 & 9404538
DATE COLLECTED: 4/08/94 14:05
DATE RECEIVED: 4/08/94

ELEMENT	SAMPLE RESULT	SPIKE LEVEL	SPIKE RESULT	% REC	SPIKE RESULT	% REC.	RPD
ANTIMONY	<0.006	0.100	0.098	98	0.099	99	1
ARSENIC	<0.010	0.040	0.042	105	0.043	108	2
LEAD	<0.003	0.020	0.020	100	0.021	105	5
SELENIUM	0.005	0.010	0.012	70	0.013	80	13
THALLIUM	<0.002	0.050	0.0602	120	0.0654	131	8

WOODWARD-CLYDE CONSULTANTS
2318 MILLPARK DRIVE
MARYLAND HEIGHTS, MO 63043

ATTN: CYNTHIA PAVELKA

INVOICE # 26164
PROJECT # C3M11Q1-2.1

ENVIRONMETRICS
2345 Millpark Drive
Maryland Heights, MO 63043-3529
(314) 427-0550

ANALYSIS RESULTS

SAMPLE ID: WMW106-D0GGWF
LAB ID: 9404536
DATE COLLECTED: 4/08/94 14:05
DATE RECEIVED: 4/08/94

TEST PERFORMED	METHOD OF ANALYSIS	RESULTS	ANALYST
METALS ANALYSIS		**TOTAL**	
ANTIMONY	SW-846 7041	<0.006 mg/l	4/21/94 D.S.
ARSENIC	SW-846 7060	<0.010	4/15/94 D.S.
BERYLLIUM	SW-846 6010	<0.004	4/14/94 R.D.
CADMIUM	SW-846 6010	<0.005	4/18/94 R.D.
CHROMIUM	SW-846 6010	<0.010	4/14/94 R.D.
COPPER	SW-846 6010	<0.025	4/14/94 R.D.
LEAD	SW-846 7421	<0.003	4/18/94 D.S.
MERCURY	SW-846 7470	<0.0002	4/14/94 B.C.
NICKEL	SW-846 6010	<0.040	4/14/94 R.D.
SELENIUM	SW-846 7740	0.006	4/15/94 D.S.
SILVER	SW-846 6010	<0.010	4/14/94 R.D.
THALLIUM	SW-846 7841	<0.002	5/06/94 D.S.
ZINC	SW-846 6010	<0.020	4/14/94 R.D.

APRIL 25, 1994

WAYNE L. COOPER
LABORATORY DIRECTOR

WOODWARD-CLYDE CONSULTANTS
2318 MILLPARK DRIVE
MARYLAND HEIGHTS, MO 63043

ATTN: CYNTHIA PAVELKA

INVOICE # 26164
PROJECT # C3M11Q1-2.1

ENVIRONMETRICS
2345 Millpark Drive
Maryland Heights, MO 63043-3529
(314) 427-0550

PREPARATION BLANK

GRAPHITE FURNACE ATOMIC ABSORPTION

PREP. CODE: MP-117-114

PREP DATE: 4/12/94

ELEMENT	BLANK RESULT
ANTIMONY	<0.006 mg/l
ARSENIC	<0.010
LEAD	<0.003
SELENIUM	<0.005
THALLIUM	<0.002

WOODWARD-CLYDE CONSULTANTS
2318 MILLPARK DRIVE
MARYLAND HEIGHTS, MO 63043

ATTN: CYNTHIA PAVELKA

INVOICE # 26164
PROJECT # C3M11Q1-2.1

ENVIRONMETRICS
2345 Millpark Drive
Maryland Heights, MO 63043-3529
(314) 427-0550

LABORATORY CONTROL SAMPLE

GRAPHITE FURNACE ATOMIC ABSORPTION

PREP. CODE: MP-117-114

PREP DATE: 4/12/94

ELEMENT	VALUE	RESULT	PERCENT RECOVERY
ANTIMONY	0.100	0.102	102
ARSENIC	0.050	0.051	102
LEAD	0.020	0.022	110
SELENIUM	0.025	0.026	104
THALLIUM	0.050	0.049	98

WOODWARD-CLYDE CONSULTANTS
2318 MILLPARK DRIVE
MARYLAND HEIGHTS, MO 63043

ATTN: CYNTHIA PAVELKA

INVOICE # 26164
PROJECT # C3M11Q1-2.1

ENVIRONMETRICS
2345 Millpark Drive
Maryland Heights, MO 63043-3529
(314) 427-0550

PREPARATION BLANK

GRAPHITE FURNACE ATOMIC ABSORPTION

PREP. CODE: MP-117-115

PREP DATE: 4/12/94

ELEMENT	BLANK RESULT
ANTIMONY	<0.006 mg/l
ARSENIC	<0.010
LEAD	<0.003
SELENIUM	<0.005
THALLIUM	<0.002

WOODWARD-CLYDE CONSULTANTS
2318 MILLPARK DRIVE
MARYLAND HEIGHTS, MO 63043

ATTN: CYNTHIA PAVELKA

INVOICE # 26164
PROJECT # C3M11Q1-2.1

ENVIRONMETRICS
2345 Millpark Drive
Maryland Heights, MO 63043-3529
(314) 427-0550

LABORATORY CONTROL SAMPLE

GRAPHITE FURNACE ATOMIC ABSORPTION

PREP. CODE: MP-117-115

PREP DATE: 4/12/94

ELEMENT	VALUE	RESULT	PERCENT RECOVERY
ANTIMONY	0.100	0.101	101
ARSENIC	0.050	0.052	104
LEAD	0.020	0.022	110
SELENIUM	0.025	0.026	104
THALLIUM	0.050	0.0535	107

WOODWARD-CLYDE CONSULTANTS
2318 MILLPARK DRIVE
MARYLAND HEIGHTS, MO 63043

ATTN: CYNTHIA PAVELKA

INVOICE # 26164
PROJECT # C3M11Q1-2.1

ENVIRONMETRICS
2345 Millpark Drive
Maryland Heights, MO 63043-3529
(314) 427-0550

PREPARATION BLANK

ICP/AA

PREP. CODE: MP-172-129

PREP DATE: 4/12/94

ELEMENT	BLANK RESULT
BERYLLIUM	<0.004 mg/l
CADMIUM	<0.005
CHROMIUM	<0.010
COPPER	<0.025
LEAD	<0.100
MERCURY	<0.0002
NICKEL	<0.040
SILVER	<0.010
ZINC	<0.020

WOODWARD-CLYDE CONSULTANTS
2318 MILLPARK DRIVE
MARYLAND HEIGHTS, MO 63043

ATTN: CYNTHIA PAVELKA

INVOICE # 26164
PROJECT # C3M11Q1-2.1

ENVIRONMETRICS
2345 Millpark Drive
Maryland Heights, MO 63043-3529
(314) 427-0550

LABORATORY CONTROL SAMPLE

ICP/AA

PREP. CODE: MP-172-129

PREP DATE: 4/12/94

ELEMENT	VALUE	RESULT	PERCENT RECOVERY
BERYLLIUM	0.50	0.467	93
CADMIUM	0.50	0.437	87
CHROMIUM	0.50	0.499	100
COPPER	0.50	0.483	97
LEAD	0.50	0.520	104
MERCURY	0.0020	0.0021	105
NICKEL	0.50	0.452	90
SILVER	0.50	0.455	91
ZINC	0.50	0.488	98

WOODWARD-CLYDE CONSULTANTS
2318 MILLPARK DRIVE
MARYLAND HEIGHTS, MO 63043

ATTN: CYNTHIA PAVELKA

INVOICE # 26164
PROJECT # C3M11Q1-2.1

ENVIRONMETRICS
2345 Millpark Drive
Maryland Heights, MO 63043-3529
(314) 427-0550

PREPARATION BLANK

ICP/AA

PREP. CODE: MP-172-130

PREP DATE: 4/12/94

ELEMENT	BLANK RESULT
BERYLLIUM	<0.004 mg/l
CADMIUM	<0.005
CHROMIUM	<0.010
COPPER	<0.025
LEAD	<0.100
MERCURY	<0.0002
NICKEL	<0.040
SILVER	<0.010
ZINC	<0.020

WOODWARD-CLYDE CONSULTANTS
2318 MILLPARK DRIVE
MARYLAND HEIGHTS, MO 63043

ATTN: CYNTHIA PAVELKA

INVOICE # 26164
PROJECT # C3M11Q1-2.1

ENVIRONMETRICS
2345 Millpark Drive
Maryland Heights, MO 63043-3529
(314) 427-0550

LABORATORY CONTROL SAMPLE

ICP/AA

PREP. CODE: MP-172-130

PREP DATE: 4/12/94

ELEMENT	VALUE	RESULT	PERCENT RECOVERY
BERYLLIUM	0.50	0.488	90
CADMIUM	0.50	0.490	98
CHROMIUM	0.50	0.475	95
COPPER	0.50	0.467	93
LEAD	0.50	0.484	97
MERCURY	0.0020	0.0021	105
NICKEL	0.50	0.465	93
SILVER	0.50	0.480	96
ZINC	0.50	0.459	92

APPENDIX B

CHEMICAL QUALITY ASSURANCE REPORT

MRD LIMS NO. 2570

MRD LABORATORY

OMAHA, NEBRASKA

7/27/94

2570

Mr.Taggart/bah/402-444-4313

CEMRD-ED-L (200) 27 Jul 94

MEMORANDUM FOR Commander, US Army Engineer District, Omaha,
ATTN: CEMRO-ED-ED (Gene Liu)

SUBJECT: N L Industries-Taracorp 1st Qtr 94 GW Sampling, Granite City, IL, Chemical Quality Assurance Report

1. This is in response to the request from the Omaha District for quality assurance testing.

2. Enclosed is a copy of the Chemical Quality Assurance Report, SAB.

3. The Contractor for this project was Woodward-Clyde Consultants of Maryland Heights, MO. The laboratory was Environmetrics of Maryland Heights, MO.

4. The Contractor's data met the HTW reporting requirements. Refer to the attached report for the quality assurance review.

5. No data discrepancies were noted.

6. The Quality Assurance raw data report was sent under separate cover on or about 27 Jul 94.

7. If there are any questions or comments, please call Laura Percifield, (402) 444-4304.

FOR THE COMMANDER:

Douglas B. Taggart

Encl
CQA Report

DOUGLAS B. TAGGART
Director, MRD Laboratory

CF:
CEMRD-ED-EC

CEMP-RT (Ballif)

LP 7-26-94
PERCIFIELD/CEMRD-ED-LC
DBT 7-27-94
TAGGART/CEMRD-ED-L

MRD Lab Project No. 2570

DEPARTMENT OF THE ARMY
MISSOURI RIVER DIVISION, CORPS OF ENGINEERS
DIVISION LABORATORY
OMAHA, NEBRASKA 68102

Subject: Chemical Quality Assurance Report

Project: NL Industries-Taracorp 1st Qtr 94 GW Sampling, Granite City, IL
Intended Use: Superfund
Source of Material:

Submitted by: Gene Liu, CEMRO-ED-ED
Date Sampled: 07 Apr 94 , Date Received: 08 Apr 94
Method of Test or Specification: See attached Tables 001 - 004.

References: Omaha District Request No. ENE 2688 CHG 6 dated 18 Nov 93

-- REMARKS --

1. CONTRACTOR DATA EVALUATION: The contract laboratory (Environmetrics of Maryland Heights, MO) performed the analysis using EPA methods. Proper quality control procedures were followed and documented. The data for all parameters met the USACE HTW minimum chemistry reporting requirements as specified in ER 1110-1-263 (dated 1 Oct 90).

   The Contractor provided chemical analytical results for 32 water samples including 3 field duplicates and 2 equipment blanks (rinsates), which were analyzed for total or dissolved beryllium, cadmium, chromium, copper, nickel, silver and zinc by EPA method 6010; antimony by EPA method 7041, arsenic by EPA method 7060, lead by EPA method 7421, mercury by EPA method 7470, selenium by EPA method 7740, and thallium by EPA method 7841.

   a. ACCURACY: Factors indicating the accuracy of the Contractor's data include:
      1) Matrix spike/matrix spike duplicate (MS/MSD) recoveries which for the metals were within acceptable limits, except one recovery for selenium was slightly low and one recovery for thallium was slightly high.
      2) Laboratory control sample (LCS) recoveries which for metals were within acceptable limits.

   b. PRECISION: Factors indicating the precision of the Contractor's data include:
      1) Relative percent differences (RPD) for MS/MSD which for metals were within acceptable limits.
      2) RPD for LCS which for metals were not reported.

RP 7-26-94
Percifield/glm/444-4313

3) Field duplicates were within acceptable limits.

c. LABORATORY CONTAMINANTS: Method blanks were free of contamination.

d. FIELD CONTAMINANTS: The rinsate blanks were free of contamination.

e. HOLDING TIMES: Holding times were met.

2. QA/QC COMPARISON: Split and/or duplicate samples were submitted to MRD Laboratory for analysis. Comparison of the quality assurance (QA) and contractor test results are presented in tables 001-004. No data discrepancies were noted.

3. OBSERVATIONS:

a. The QA samples arrived in good condition.

b. No shipping or chain-of-custody errors were noted for the sample shipment received by MRD Laboratory.

4. QUALITY ASSURANCE SUPPORT ACTION: A cost estimate was furnished to the Omaha District Project Manager by MRD Laboratory. Sample receipt was completed by the MRD Laboratory Project Manager in conjunction with the Omaha District. Copies of cooler receipt forms and custody papers were furnished to the Omaha District personnel on a daily basis.

5. SUMMARY: The data package submitted for this project met the USACE minimum chemistry data reporting requirements. The data packages were well organized and easy to follow.

The method quality control review indicated that the information provided supported the quality of the project data.

No data discrepancies were noted between QA and contract laboratory results. The data comparisons support the usability of the contract laboratory data.

Submitted by:

Douglas B. Taggart

DOUGLAS B. TAGGART
Director, MRD Laboratory

DEPARTMENT OF THE ARMY
Missouri River Division, Corps of Engineers
Division Laboratory
Omaha, Nebraska

COMPARISON OF QA & CONTRACTOR RESULTS

Project: N L Industries-Taracorp 1st Qtr 94 GW Sampling, Granite City, IL
QA Sample ID.: WMW112-10GGWT
Contractor's Sample ID.: WMW112-10GGWB
Material Description: Water
Date Sampled: 07 Apr 94

Analysis	QA Lab Result	Contractor Result	Units	Analysis	QA Lab Result	Contractor Result	Units
METALS							
Antimony	<2	<6	µg/L	Mercury	<0.20	<0.2	µg/L
Arsenic	<2	<10	µg/L	Nickel	<10	<40	µg/L
Beryllium	<2	<4	µg/L	Selenium	<2	<5	µg/L
Cadmium	<4	<5	µg/L	Silver	<5	<10	µg/L
Chromium	<5	<10	µg/L	Thallium	<2	<2	µg/L
Copper	<5	<25	µg/L	Zinc	<4	<20	µg/L
Lead	<2	<3	µg/L				

Table 002

QA Sample ID.: WMW104920GGWQ
Contractor's Sample ID.: WMW104920GGW
Material Description: Water
Date Sampled: 07 Apr 94

Analysis	QA Lab Result	Contractor Result	Units	Analysis	QA Lab Result	Contractor Result	Units
METALS							
Antimony	<2	<6	µg/L	Mercury	<0.20	<0.2	µg/L
Arsenic	<2	<10	µg/L	Nickel	<10	<40	µg/L
Beryllium	<2	<4	µg/L	Selenium	<2	<5	µg/L
Cadmium	<4	<5	µg/L	Silver	<5	<10	µg/L
Chromium	<5	<10	µg/L	Thallium	<2	<2	µg/L
Copper	<5	<25	µg/L	Zinc	<4	<20	µg/L
Lead	23	36	µg/L				

COMMENTS:

Data agreed.

DEPARTMENT OF THE ARMY
Missouri River Division, Corps of Engineers
Division Laboratory
Omaha, Nebraska

COMPARISON OF QA & CONTRACTOR RESULTS

Project: N L Industries-Taracorp 1st Qtr 94 GW Sampling, Granite City, IL
QA Sample ID.: WMW104920GGWQF — Contractor's Sample ID.: WMW104920GGWF
Material Description: Water — Date Sampled: 07 Apr 94

Analysis	QA Lab Result	Contractor Result	Units	Analysis	QA Lab Result	Contractor Result	Units
METALS							
Antimony	<2	<6	µg/L	Mercury	<0.20	<0.2	µg/L
Arsenic	<2	<10	µg/L	Nickel	<10	<40	µg/L
Beryllium	<2	<4	µg/L	Selenium	<2	<5	µg/L
Cadmium	<4	<5	µg/L	Silver	<5	<10	µg/L
Chromium	<5	<10	µg/L	Thallium	<2	<2	µg/L
Copper	<5	<25	µg/L	Zinc	<4	<20	µg/L
Lead	<2	<3	µg/L				

Table 004

QA Sample ID.: WMW104-10GWQ — Contractor's Sample ID.: WMW104-10GGW
Material Description: Water — Date Sampled: 07 Apr 94

Analysis	QA Lab Result	Contractor Result	Units	Analysis	QA Lab Result	Contractor Result	Units
METALS							
Antimony	3	<6	µg/L	Mercury	<0.20	<0.2	µg/L
Arsenic	6	<10	µg/L	Nickel	15	<40	µg/L
Beryllium	<2	<4	µg/L	Selenium	4	<5	µg/L
Cadmium	<4	6	µg/L	Silver	<5	<10	µg/L
Chromium	<5	<10	µg/L	Thallium	<2	<2	µg/L
Copper	<5	<25	µg/L	Zinc	15	<20	µg/L
Lead	16	19	µg/L				

COMMENTS:

Data agreed.

MRD Lab Project No. 2570

DEPARTMENT OF THE ARMY
MISSOURI RIVER DIVISION, CORPS OF ENGINEERS
DIVISION LABORATORY
OMAHA, NEBRASKA 68102

27 JUL 1994

Subject: Quality Assurance Test Results

Project: NL Industries-Taracorp 1st Qtr 94 GW Sampling, Granite City, IL
Intended Use: Superfund
Source of Material:

Submitted by: Gene Liu, CEMRO-ED-ED
Date Sampled: 07 Apr 94 , Date Received: 08 Apr 94
Method of Test or Specification: See attached test result sheets.

References: Omaha District Request No. ENE 2688 CHG 6 dated 18 Nov 93

-- REMARKS --

1. The samples arrived in good condition.

2. Enclosed are the following:

   Part A: Sample Receipt Information (1 page)
   Part B: Chain-of-Custody Information (3 pages)
   Part C: Quality Assurance Test Results (30 pages)

3. The Chemical Quality Assurance Report will be forwarded to you under separate cover on or about 27 Jul 94.

Submitted by:

Douglas B. Taggart

DOUGLAS B. TAGGART
Director, MRD Laboratory

RP 7-26-94
Percifield/bab/444-4313

PART A

SAMPLE RECEIPT INFORMATION

QA/QC Table #	Customer Sample #	Date Sampled	Matrix	MRD Lab # Assigned	Tests Assigned	QA Test Results Page Number
001	WMW112-10GGWT	07 Apr 94	Water	940408-002	Metals	C1-C3
002	WMW104920GGWQ	07 Apr 94	Water	940408-003	Total Metals	C4-C6
	WMW104920GGWR	07 Apr 94	Water	940408-004	Metals (MS)	C7-C9
	WMW104920GGWS	07 Apr 94	Water	940408-005	Metals (MSD)	C10-C12
003	WMW104920GGWQF	07 Apr 94	Water	940408-006	Dissolved Metals	C13-C15
004	WMW104-10GWQ	07 Apr 94	Water	940408-007	Metals	C16-C18

PART B

CHAIN-OF-CUSTODY INFORMATION

Page No.	Chain-of-Custody No.	Date Signed
81	NL 1	07 Apr 94

NL1

SHEET 1 of 1

CHAIN OF CUSTODY RECORD

WOODWARD-CLYDE CONSULTANTS
2318 MILLPARK DR.
MARYLAND HEIGHTS, MISSOURI 63043
314-429-0100

PROJECT NO: C3M11Q1-2 MRD LIMS #2670

PROJECT NAME: NL/Taracorp Superfund Site Granite City, IL

SAMPLER'S: (Signature) C. Pavelka

DATE	TIME	SAMPLE I.D. NUMBER	NO. OF CONTAINERS	CONTAINER DESCRIPTION / ANALYSES REQUESTED: T. Metals * pH<2 HNO3 4°C 1L Poly					REMARKS
4/7/94	11:00	WMW112-1Ø66WT	1	X					* See Attached List
4/7/94	13:50	WMW1Ø492Ø66WQ	1	X					
4/7/94	13:50	WMW1Ø492Ø66WR	1	X					MS for WMW1Ø492Ø66WQ
4/7/94	13:50	WMW1Ø492Ø66WS	1	X					MSD for WMW1Ø492Ø66WQ
4/7/94	13:50	WMW1Ø492Ø66WQF	1	X					Field Filtered
4/7/94	14:40	WMW1Ø4-1Ø66WQ	1	X					

RELINQUISHED BY: (Signature)	DATE / TIME	RECEIVED BY: (Signature)	DATE / TIME
Cynthia Pavelka	4/7/94 17:40		
RELINQUISHED BY: (Signature)	DATE / TIME	RECEIVED AT LAB BY: (Signature)	DATE / TIME
		Shelley Stevens	4/8/94 0840
METHOD OF SHIPMENT: FedEx		AIRBILL NO: 7018133025	

B2

For NL/Taracorp Superfund Site
For MRD LIMS # 2570
First Quarterly 1994 Groundwater Sampling Event
Metals to be tested and SW-846 methods

Parameters	Detection Limits/ Method
Tota Metals:	
- Hg	< 0.002 / 7470
- As	< 0.050 / 7460
- Pb	< 0.0075 / 7421
- Se	< 0.050 / 7740
- Tl	< 0.010 / 7841
- Be	< 0.004 / 6010
- Cd	< 0.005 / 6010
- Cu	< 0.650 / 6010
- Ni	< 0.100 / 6010
- Sb	< 0.006 / 7041
- Zn	< 5.000 / 6010
- Cr	<0.1000 / 6010
- Ag	<0.0500 / 6010

Cynthia Powell

B3

COOLER RECEIPT FORM

LIMS# 2570 MRD Cooler # — Number of Coolers 1 Contractor Cooler WC

PROJECT: NL Jarocorp Date received: 4/8/94

USE OTHER SIDE OF THIS FORM TO NOTE DETAILS CONCERNING CHECK-IN PROBLEMS.

A. PRELIMINARY EXAMINATION PHASE: Date cooler opened: 4/8/94 C-of-C Number: NL1

by (print) Shelly Swink (sign) Shelly Swink

1. Did cooler come with a shipping slip (air bill, etc.)? ..... (YES) NO

If YES, enter carrier name & air bill number here: FEDX 801818 3025

2. Were custody seals on outside of cooler? ..... (YES) NO

How many & where: 2 (1a side), seal date: 4/7/94 seal name C. Pawelka

3. Were custody seals unbroken and intact at the date and time of arrival? ..... (YES) NO

4. Did you screen samples for radioactivity using the Geiger Counter..... (YES) NO

5. Were custody papers sealed in a plastic bag & taped inside to the lid? ..... (YES) NO

6. Were custody papers filled out properly (ink, signed, etc.)? ..... (YES) NO

7. Did you sign custody papers in the appropriate place? ..... (YES) NO

8. Was project identifiable from custody papers? If YES, enter project name at the top of this form. (YES) NO

9. If required, was enough ice used? ..... Type of ice: regular ..... 4.0 (YES) NO

10. Have designated person initial here to acknowledge receipt of cooler: _____(date)_____

B. LOG-IN PHASE: Date samples were logged-in: 4/8/94

by (print) Shelly Swink (sign) Shelly Swink

11. Describe type of packing in cooler: bubble wrap

12. Were all bottles sealed in separate plastic bags? ..... (YES) NO

13. Did all bottles arrive unbroken & were labels in good condition? ..... (YES) NO

14. Were all bottle labels complete (ID, date, time, signature, preservative, etc.)? ..... (YES) NO

15. Did all bottle labels agree with custody papers? ..... (YES) NO

16. Were correct containers used for the tests indicated? ..... (YES) NO

17. Were correct preservatives added to samples? ..... (YES) NO

18. Was a sufficient amount of sample sent for tests indicated? ..... (YES) NO

19. Were bubbles absent in Volatile samples? If NO, list by QA#: N/A (YES) NO

20. Was the project manager called and status discussed? If YES, give details on the back of this form. YES NO

21. Who was called ? _____ By whom ? _____ (date)_____

PART C

QUALITY ASSURANCE TEST RESULTS

C1

DEPARTMENT OF THE ARMY
Missouri River Division, Corps of Engineers
Division Laboratory
Omaha, Nebraska

Thermo Jarrell Ash ICAP Metals

FAMIS Number: 2570
Project Name: N L Industries-Taracorp 1st Qtr 94 GW Sampling

Sample Description: Water	Date Sample Taken: 07 Apr 94
MRD Lab Sample No.: 940408-H002	Date Sample Received: 08 Apr 94
Client Sample No.: WMW112-10GGWT	Date Digested: 13 Apr 94
Method: EPA Method 3005/6010	Date Analyzed: 15 Apr 94
Analyst: T. Shannon	Batch: 9404150642
	Sequence: 9404150642

RESULTS (µg/L)

Analyte	Result	Det Limit
Be	u	2
Cd	u	4
Cr	u	5
Cu	u	5
Ni	u	10
Ag	u	5
Zn	u	4

u: Below Detection Limit

Laboratory Comments:

Approved By: Peggy N. Anna Date: 4-16-94

TLS

C2

DEPARTMENT OF THE ARMY
Missouri River Division, Corps of Engineers
Division Laboratory
Omaha, Nebraska

Perkin Elmer AAGF Metals

FAMIS Number: 2570
Project Name: N L Industries-Taracorp 1st Qtr 94 GW Sampling

Sample Description: Water
MRD Lab Sample No.: 940408-H002
Client Sample No.: WMW112-10GGWT
Analyst: A. Hindemith

Date Sample Taken: 07 Apr 94
Date Sample Received: 08 Apr 94
Date Digested: 15 Apr 94
Batch: 9404181525

RESULTS (µg/L)

Analyte		EPA Method	Result	Detection Limit	Date Analyzed
Antimony	(Sb)	7041	u	2	15 Apr 94
Arsenic	(As)	7060	u	2	18 Apr 94
Lead	(Pb)	7421	u	2	19 Apr 94
Selenium	(Se)	7740	u	2	26 Apr 94
Thallium	(Tl)	7841	u	2	18 Apr 94

u: Below Detection Limit

Laboratory Comments:

Approved By: Prem N. Arora (AMH) Date: 5-6-94

C3

DEPARTMENT OF THE ARMY
Missouri River Division, Corps of Engineers
Division Laboratory
Omaha, Nebraska

Mercury by AACV

FAMIS Number: 2570
Project Name: N L Industries-Taracorp 1st Qtr 94 GW Sampling

ample Description: Water
RD Lab Sample No.: 940408-H002
Client Sample No.: WMW112-10GGWT
Method: EPA Method 7470
Analyst: T. Shannon

Date Sample Taken: 07 Apr 94
Date Sample Received: 08 Apr 94
Date Digested: 28 Apr 94
Date Analyzed: 29 Apr 94
Dilution Factor: 1.0
Batch: 9404291035B

RESULTS (µg/L)

Analyte	Result	Det Limit
Hg	u	0.20

u: Below Detection Limit

aboratory Comments:

pproved By: Prem N. Arora Date: 5.5.94
DESA

C4

DEPARTMENT OF THE ARMY
Missouri River Division, Corps of Engineers
Division Laboratory
Omaha, Nebraska

Thermo Jarrell Ash ICAP Metals

FAMIS Number: 2570
Project Name: N L Industries-Taracorp 1st Qtr 94 GW Sampling

Sample Description: Water
MRD Lab Sample No.: 940408-H003
Client Sample No.: WMW104920GGWQ
Method: EPA Method 3005/6010
Analyst: T. Shannon

Date Sample Taken: 07 Apr 94
Date Sample Received: 08 Apr 94
Date Digested: 13 Apr 94
Date Analyzed: 15 Apr 94
Batch: 9404150642
Sequence: 9404150642

RESULTS (µg/L)

Analyte	Result	Det Limit
Be	u	2
Cd	u	4
Cr	u	5
Cu	u	5
Ni	u	10
Ag	u	5
Zn	u	4

u: Below Detection Limit

Laboratory Comments:

Approved By: Thomas D. Arms Date: 4-18-94

TLS

C5

DEPARTMENT OF THE ARMY
Missouri River Division, Corps of Engineers
Division Laboratory
Omaha, Nebraska

Perkin Elmer AAGF Metals

FAMIS Number: 2570
Project Name: N L Industries-Taracorp 1st Qtr 94 GW Sampling

Sample Description: Water
MRD Lab Sample No.: 940408-H003
Client Sample No.: WMW104920GGWQ
Analyst: A. Hindemith

Date Sample Taken: 07 Apr 94
Date Sample Received: 08 Apr 94
Date Digested: 15 Apr 94
Batch: 9404181525

RESULTS (µg/L)

Analyte		EPA Method	Result	Detection Limit	Date Analyzed
Antimony	(Sb)	7041	u	2	15 Apr 94
Arsenic	(As)	7060	u	2	18 Apr 94
Lead	(Pb)	7421	23	2	19 Apr 94
Selenium	(Se)	7740	u	2	26 Apr 94
Thallium	(Tl)	7841	u	2	18 Apr 94

u: Below Detection Limit

Laboratory Comments:

Approved By: Prem. N. Arora (Asst) Date: 5-6-94

C6

DEPARTMENT OF THE ARMY
Missouri River Division, Corps of Engineers
Division Laboratory
Omaha, Nebraska

Mercury by AACV

FAMIS Number: 2570
Project Name: N L Industries-Taracorp 1st Qtr 94 GW Sampling

Sample Description:	Water	Date Sample Taken:	07 Apr 94
RD Lab Sample No.:	940408-H003	Date Sample Received:	08 Apr 94
Client Sample No.:	WMW104920GGWQ	Date Digested:	28 Apr 94
Method:	EPA Method 7470	Date Analyzed:	29 Apr 94
Analyst:	T. Shannon	Dilution Factor:	1.0
		Batch:	9404291035B

RESULTS (µg/L)

Analyte	Result	Det Limit
Hg	u	0.20

u: Below Detection Limit

aboratory Comments:

Approved By: Ryan N. Arnn Date: 5.5.94

DESA

C7

DEPARTMENT OF THE ARMY
Missouri River Division, Corps of Engineers
Division Laboratory
Omaha, Nebraska

Thermo Jarrell Ash ICAP Metals

FAMIS Number: 2570
Project Name: N L Industries-Taracorp 1st Qtr 94 GW Sampling

ample Description: Water
RD Lab Sample No.: 940408-H004
Client Sample No.: WMW104920GGWR
Method: EPA Method 3005/6010
Analyst: T. Shannon

Date Sample Taken: 07 Apr 94
Date Sample Received: 08 Apr 94
Date Digested: 13 Apr 94
Date Analyzed: 15 Apr 94
Batch: 9404150642
Sequence: 9404150642

RESULTS (µg/L)

Analyte	Result	Det Limit
Be	u	2
Cd	u	4
Cr	u	5
Cu	u	5
Ni	u	10
Ag	u	5
Zn	u	4

u: Below Detection Limit

L oratory Comments:

Approved By: Pam N. Arnow Date: 4-16-94

TLS

C8

DEPARTMENT OF THE ARMY
Missouri River Division, Corps of Engineers
Division Laboratory
Omaha, Nebraska

Perkin Elmer AAGF Metals

FAMIS Number: 2570
Project Name: N L Industries-Taracorp 1st Qtr 94 GW Sampling

ample Description: Water
RD Lab Sample No.: 940408-H004
Client Sample No.: WMW104920GGWR
Analyst: A. Hindemith

Date Sample Taken: 07 Apr 94
Date Sample Received: 08 Apr 94
Date Digested: 15 Apr 94
Batch: 9404181525

RESULTS (µg/L)

Analyte		EPA Method	Result	Detection Limit	Date Analyzed
Antimony	(Sb)	7041	u	2	15 Apr 94
Arsenic	(As)	7060	u	2	18 Apr 94
Lead	(Pb)	7421	24	2	19 Apr 94
Selenium	(Se)	7740	u	2	26 Apr 94
Thallium	(Tl)	7841	u	2	18 Apr 94

u: Below Detection Limit

aboratory Comments:

pproved By: Thomas Mora
AMH

Date: 5-6-94

C9

DEPARTMENT OF THE ARMY
Missouri River Division, Corps of Engineers
Division Laboratory
Omaha, Nebraska

Mercury by AACV

FAMIS Number: 2570
Project Name: N L Industries-Taracorp 1st Qtr 94 GW Sampling

Sample Description: Water
MRD Lab Sample No.: 940408-H004
Client Sample No.: WMW104920GGWR
Method: EPA Method 7470
Analyst: T. Shannon

Date Sample Taken: 07 Apr 94
Date Sample Received: 08 Apr 94
Date Digested: 28 Apr 94
Date Analyzed: 29 Apr 94
Dilution Factor: 1.0
Batch: 9404291035B

RESULTS (µg/L)

Analyte	Result	Det Limit
Hg	u	0.20

u: Below Detection Limit

Laboratory Comments:

Approved By: Prem N. Arora Date: 5.5.94
DESA

C10

DEPARTMENT OF THE ARMY
Missouri River Division, Corps of Engineers
Division Laboratory
Omaha, Nebraska

Thermo Jarrell Ash ICAP Metals

FAMIS Number: 2570
Project Name: N L Industries-Taracorp 1st Qtr 94 GW Sampling

Sample Description:	Water	Date Sample Taken:	07 Apr 94
RD Lab Sample No.:	940408-H005	Date Sample Received:	08 Apr 94
Client Sample No.:	WMW104920GGWS	Date Digested:	13 Apr 94
Method:	EPA Method 3005/6010	Date Analyzed:	15 Apr 94
Analyst:	T. Shannon	Batch:	9404150642,
		Sequence:	9404150642

RESULTS (µg/L)

Analyte	Result	Det Limit
Be	u	2
Cd	u	4
Cr	7	5
Cu	u	5
Ni	u	10
Ag	u	5
Zn	u	4

u: Below Detection Limit

Laboratory Comments:

Approved By: Prem N. Arora Date: 4-16-94

TLS

C11

DEPARTMENT OF THE ARMY
Missouri River Division, Corps of Engineers
Division Laboratory
Omaha, Nebraska

Perkin Elmer AAGF Metals

FAMIS Number: 2570
Project Name: N L Industries-Taracorp 1st Qtr 94 GW Sampling

ample Description: Water — **Date Sample Taken:** 07 Apr 94
RD Lab Sample No.: 940408-H005 — **Date Sample Received:** 08 Apr 94
Client Sample No.: WMW104920GGWS — **Date Digested:** 15 Apr 94
Analyst: A. Hindemith — **Batch:** 9404181525

RESULTS (µg/L)

Analyte		EPA Method	Result	Detection Limit	Date Analyzed
Antimony	(Sb)	7041	u	2	15 Apr 94
Arsenic	(As)	7060	u	2	18 Apr 94
Lead	(Pb)	7421	22	2	19 Apr 94
Selenium	(Se)	7740	u	2	26 Apr 94
Thallium	(Tl)	7841	u	2	18 Apr 94

u: Below Detection Limit

aboratory Comments:

pproved By: AMH Peggy N. Arms — Date: 5·6·94

C12

DEPARTMENT OF THE ARMY
Missouri River Division, Corps of Engineers
Division Laboratory
Omaha, Nebraska

Mercury by AACV

FAMIS Number: 2570
Project Name: N L Industries-Taracorp 1st Qtr 94 GW Sampling

Sample Description: Water
MRD Lab Sample No.: 940408-H005
Client Sample No.: WMW104920GGWS
Method: EPA Method 7470
Analyst: T. Shannon

Date Sample Taken: 07 Apr 94
Date Sample Received: 08 Apr 94
Date Digested: 28 Apr 94
Date Analyzed: 29 Apr 94
Dilution Factor: 1.0
Batch: 9404291035B

RESULTS (µg/L)

Analyte	Result	Det Limit
Hg	u	0.20

u: Below Detection Limit

Laboratory Comments:

Approved By: Brenda Arna Date: 5-5-94

DSSB

C13

DEPARTMENT OF THE ARMY
Missouri River Division, Corps of Engineers
Division Laboratory
Omaha, Nebraska

Thermo Jarrell Ash ICAP Metals

FAMIS Number: 2570
Project Name: N L Industries-Taracorp 1st Qtr 94 GW Sampling

ample Description: Water
RD Lab Sample No.: 940408-H006
Client Sample No.: WMW104920GGWQF
Method: EPA Method 3005/6010
Analyst: T. Shannon

Date Sample Taken: 07 Apr 94
Date Sample Received: 08 Apr 94
Date Digested: 13 Apr 94
Date Analyzed: 15 Apr 94
Batch: 9404150642
Sequence: 9404150642

RESULTS (µg/L)

Analyte	Result	Det Limit
Be	u	2
Cd	u	4
Cr	u	5
Cu	u	5
Ni	u	10
Ag	u	5
Zn	u	4

u: Below Detection Limit

oratory Comments:

Approved By: Prem. N. Arora Date: 4-16-94

TLS

C14

DEPARTMENT OF THE ARMY
Missouri River Division, Corps of Engineers
Division Laboratory
Omaha, Nebraska

Perkin Elmer AAGF Metals

FAMIS Number: 2570
Project Name: N L Industries-Taracorp 1st Qtr 94 GW Sampling

ample Description: Water
RD Lab Sample No.: 940408-H006
Client Sample No.: WMW104920GGWQF
Analyst: A. Hindemith

Date Sample Taken: 07 Apr 94
Date Sample Received: 08 Apr 94
Date Digested: 15 Apr 94
Batch: 9404181525

RESULTS (µg/L)

Analyte		EPA Method	Result	Detection Limit	Date Analyzed
Antimony	(Sb)	7041	u	2	15 Apr 94
Arsenic	(As)	7060	u	2	18 Apr 94
Lead	(Pb)	7421	u	2	19 Apr 94
Selenium	(Se)	7740	u	2	26 Apr 94
Thallium	(Tl)	7841	u	2	18 Apr 94

u: Below Detection Limit

aboratory Comments:

pproved By: Prem N. Arora (Asst) Date: 5·6·94

C15

DEPARTMENT OF THE ARMY
Missouri River Division, Corps of Engineers
Division Laboratory
Omaha, Nebraska

Mercury by AACV

FAMIS Number: 2570
Project Name: N L Industries-Taracorp 1st Qtr 94 GW Sampling

Sample Description: Water
MRD Lab Sample No.: 940408-H006
Client Sample No.: WMW104920GGWQF
Method: EPA Method 7470
Analyst: T. Shannon

Date Sample Taken: 07 Apr 94
Date Sample Received: 08 Apr 94
Date Digested: 28 Apr 94
Date Analyzed: 29 Apr 94
Dilution Factor: 1.0
Batch: 9404291035B

RESULTS (µg/L)

Analyte	Result	Det Limit
Hg	u	0.20

u: Below Detection Limit

Laboratory Comments:

Approved By: Prem. V. Arora DESA Date: 5.5.94

C16

DEPARTMENT OF THE ARMY
Missouri River Division, Corps of Engineers
Division Laboratory
Omaha, Nebraska

Thermo Jarrell Ash ICAP Metals

FAMIS Number: 2570
Project Name: N L Industries-Taracorp 1st Qtr 94 GW Sampling

ample Description: Water
RD Lab Sample No.: 940408-H007
Client Sample No.: WMW104-10GWQ
Method: EPA Method 3005/6010
Analyst: T. Shannon

Date Sample Taken: 07 Apr 94
Date Sample Received: 08 Apr 94
Date Digested: 13 Apr 94
Date Analyzed: 15 Apr 94
Batch: 9404150642
Sequence: 9404150642

RESULTS (µg/L)

Analyte	Result	Det Limit
Be	u	2
Cd	u	4
Cr	u	5
Cu	u	5
Ni	15	10
Ag	u	5
Zn	15	4

u: Below Detection Limit

Laboratory Comments:

Approved By: Prem N. Arora Date: 4-16-94

TLS

C17

DEPARTMENT OF THE ARMY
Missouri River Division, Corps of Engineers
Division Laboratory
Omaha, Nebraska

Perkin Elmer AAGF Metals

FAMIS Number: 2570
Project Name: N L Industries-Taracorp 1st Qtr 94 GW Sampling

Sample Description: Water
MRD Lab Sample No.: 940408-H007
Client Sample No.: WMW104-10GWQ
Analyst: A. Hindemith

Date Sample Taken: 07 Apr 94
Date Sample Received: 08 Apr 94
Date Digested: 15 Apr 94
Batch: 9404181525

RESULTS (µg/L)

Analyte		EPA Method	Result	Detection Limit	Date Analyzed
Antimony	(Sb)	7041	3	2	15 Apr 94
Arsenic	(As)	7060	6	2	18 Apr 94
Lead	(Pb)	7421	16	2	19 Apr 94
Selenium	(Se)	7740	4	2	26 Apr 94
Thallium	(Tl)	7841	u	2	18 Apr 94

u: Below Detection Limit

Laboratory Comments:

Approved By: AMH Premn. Arora Date: 5.6.94

C18

DEPARTMENT OF THE ARMY
Missouri River Division, Corps of Engineers
Division Laboratory
Omaha, Nebraska

Mercury by AACV

FAMIS Number: 2570
Project Name: N L Industries-Taracorp 1st Qtr 94 GW Sampling

Sample Description: Water
MRD Lab Sample No.: 940408-H007
Client Sample No.: WMW104-10GWQ
Method: EPA Method 7470
Analyst: T. Shannon

Date Sample Taken: 07 Apr 94
Date Sample Received: 08 Apr 94
Date Digested: 28 Apr 94
Date Analyzed: 29 Apr 94
Dilution Factor: 1.0
Batch: 9404291035B

RESULTS (µg/L)

Analyte	Result	Det Limit
Hg	u	0.20

u: Below Detection Limit

Laboratory Comments:

Approved By: Richard W. Arora Date: 5-5-94
DESD

C19

DEPARTMENT OF THE ARMY
Missouri River Division, Corps of Engineers
Division Laboratory
Omaha, Nebraska

Thermo Jarrell Ash ICAP Metals

FAMIS Number: 2570
Project Name: N L Industries-Taracorp 1st Qtr 94 GW Sampling
QC Identifier: Method Blank

ample Description: Water
Method: EPA Method 3005/6010
Analyst: T. Shannon

Date Analyzed: 15 Apr 94
Batch: 9404150642
Sequence: 9404150642

RESULTS (µg/L)

Analyte	Result	Det Limit
Be	u	2
Cd	u	4
Cr	u	5
Cu	u	5
Ni	u	10
Ag	u	5
Zn	u	4

u: Below Detection Limit

aboratory Comments:

pproved By: Prem N. Arora TLS

Date: 4-16-94

C20

DEPARTMENT OF THE ARMY
Missouri River Division, Corps of Engineers
Division Laboratory
Omaha, Nebraska

Thermo Jarrell Ash ICAP Metals

FAMIS Number: 2570
Project Name: N L Industries-Taracorp 1st Qtr 94 GW Sampling
QC Identifier: Laboratory Matrix Duplicate

Sample Description: Water
MRD Lab Sample No.: 940408-H004
Client Sample No.: WMW104920GGWR
Method: EPA Method 3005/6010
Analyst: T. Shannon

Date Sample Taken: 07 Apr 94
Date Sample Received: 08 Apr 94
Date Digested: 13 Apr 94
Date Analyzed: 15 Apr 94
Batch: 9404150642
Sequence: 9404150642

RESULTS (µg/L)

Analyte	Sample Result	Duplicate Result	RPD	Detection Limit
Be	u	u	NC	2
Cd	u	u	NC	4
Cr	u	u	NC	5
Cu	u	u	NC	5
Ni	u	u	NC	10
Ag	u	u	NC	5
Zn	u	u	NC	4

u: Below Detection Limit
NC: Not Calculable
RPD: ± 20 (for results greater than five times DL)

Laboratory Comments:

Approved By: Thomas Arna Date: 4-11-94
TCS

C21

DEPARTMENT OF THE ARMY
Missouri River Division, Corps of Engineers
Division Laboratory
Omaha, Nebraska

Thermo Jarrell Ash ICAP Metals

FAMIS Number: 2570
Project Name: N L Industries-Taracorp 1st Qtr 94 GW Sampling
QC Identifier: Matrix Spike, Matrix Spike Duplicate

ample Description: Water
MRD Lab Sample No.: 940408-H004
Client Sample No.: WMW104920GGWR
Method: EPA Method 3005/6010
Analyst: T. Shannon

Date Sample Taken: 07 Apr 94
Date Sample Received: 08 Apr 94
Date Digested: 13 Apr 94
Date Analyzed: 15 Apr 94
Batch: 9404150642
Sequence: 9404150642

RESULTS (µg/L)

nalyte	Sample Result	Spike Added	Conc MS	%Rec MS	Conc MSD	%Rec MSD	RPD
Be	u	50	50	100	49	98	2.0
Cd	u	50	54	108	55	110	1.8
Cr	u	200	201	101	203	102	1.0
Cu	u	250	259	104	254	102	1.9
Ni	u	500	510	102	514	103	.8
Ag	u	50	50	100	51	102	2.0
Zn	u	500	521	104	526	105	1.0

u: Below Detection Limit
%Rec: 80-120 Percent of the spike recovered from the matrix
RPD: ± 20 (for results greater than five times DL)

aboratory Comments:

Approved By: Pam N. Anna Date: 4-18-94
TLS

C22

DEPARTMENT OF THE ARMY
Missouri River Division, Corps of Engineers
Division Laboratory
Omaha, Nebraska

Thermo Jarrell Ash ICAP Metals

FAMIS Number: 2570
Project Name: N L Industries-Taracorp 1st Qtr 94 GW Sampling
QC Identifier: Laboratory Control Sample (LCS)

ample Description:	Water	Date Analyzed:	15 Apr 94
LCS Source:	VHG Labs, Inc.	MRD Lab Code:	ICPW3
Lot Number:	301946A,301946B,301500	Expiration Date:	31 Aug 94
Method:	EPA Method 3005/6010	Batch:	9404150642
Analyst:	T. Shannon	Sequence:	9404150642

RESULTS (µg/L)

Analyte	Result	True Value	%Rec	Detection Limit
Be	814	800	102	2
Cd	1070	1000	107	4
Cr	2140	2000	107	5
Cu	2050	2000	103	5
Ni	2140	2000	107	10
Ag	414	400	104	5
Zn	2120	2000	106	4

u: Below Detection Limit
NC: Not Calculable
%REC: 80 to 120

Laboratory Comments:

Approved By: Thom. N. Aron Date: 4-16-94

TLS

C23

DEPARTMENT OF THE ARMY
Missouri River Division, Corps of Engineers
Division Laboratory
Omaha, Nebraska

Perkin Elmer AAGF Metals

FAMIS Number: 2570
Project Name: N L Industries-Taracorp 1st Qtr 94 GW Sampling
QC Identifier: Method Blank

ample Description: Water **Batch:** 9404181525
Analyst: A. Hindemith

RESULTS (µg/L)

Analyte		EPA Method	Result	Detection Limit	Date Analyzed
Antimony	(Sb)	7041	u	2	15 Apr 94
Arsenic	(As)	7060	u	2	18 Apr 94
Lead	(Pb)	7421	u	2	19 Apr 94
Selenium	(Se)	7740	u	2	26 Apr 94
Thallium	(Tl)	7841	u	2	18 Apr 94

u: Below Detection Limit

Laboratory Comments:

..pproved By: Prem. N. Arora Date: 5-6-94
AMH

C24

DEPARTMENT OF THE ARMY
Missouri River Division, Corps of Engineers
Division Laboratory
Omaha, Nebraska

Perkin Elmer AAGF Metals

FAMIS Number: 2570
Project Name: N L Industries-Taracorp 1st Qtr 94 GW Sampling
QC Identifier: Laboratory Matrix Duplicate

ample Description: Water
MRD Lab Sample No.: 940408-H004
Client Sample No.: WMW104920GGWR
Analyst: A. Hindemith

Date Sample Taken: 07 Apr 94
Date Sample Received: 08 Apr 94
Date Digested: 15 Apr 94
Batch: 9404181525

RESULTS (µg/L)

Analyte	EPA Method	Sample Result	Duplicate Result	RPD	Detection Limit	Date Analyzed
Sb	7041	u	u	NC	2	15 Apr 94
As	7060	u	u	NC	2	18 Apr 94
Pb	7421	24	25	4.1	2	19 Apr 94
Se	7740	u	u	NC	2	26 Apr 94
Tl	7841	u	u	NC	2	18 Apr 94

u: Below Detection Limit
NC: Not Calculable
Control Limits: ± 20 (for >5X CRDL)

Laboratory Comments:

Approved By: Pam N. Arms
AMH

Date: 5.6.94

C25

DEPARTMENT OF THE ARMY
Missouri River Division, Corps of Engineers
Division Laboratory
Omaha, Nebraska

Perkin Elmer AAGF Metals

FAMIS Number: 2570
Project Name: N L Industries-Taracorp 1st Qtr 94 GW Sampling
QC Identifier: Matrix Spike, Matrix Spike Duplicate

ample Description: Water
MRD Lab Sample No.: 940408-H004
Client Sample No.: WMW104920GGWR
Analyst: A. Hindemith

Date Sample Taken: 07 Apr 94
Date Sample Received: 08 Apr 94
Date Digested: 15 Apr 94
Batch: 9404181525

RESULTS (µg/L)

Analyte	Sample Result	Spike Added	Conc MS	%Rec MS	Conc MSD	%Rec MSD	RPD
Sb	u	20	22	110	21	105	4.7
As	u	20	21	105	20	100	4.9
Pb	24	20	43	95	43	95	0.0
Se	u	20	21	105	23	115	9.1
Tl	u	20	20	100	20	100	0.0

u: Below Detection Limit
%Rec: Percent of the spike recovered from the matrix
Control Limits: 75-125 (if [spike added] > [sample]/4)

Analyte		EPA Method	Detection Limit	Analysis Date MS	Analysis Date MSD
Antimony	(Sb)	7041	2	15 Apr 94	15 Apr 94
Arsenic	(As)	7060	2	18 Apr 94	18 Apr 94
Lead	(Pb)	7421	2	19 Apr 94	19 Apr 94
Selenium	(Se)	7740	2	26 Apr 94	26 Apr 94
Thallium	(Tl)	7841	2	18 Apr 94	18 Apr 94

aboratory Comments:

pproved By: AMH Prem N. Arora Date: 5.6.94

C26

DEPARTMENT OF THE ARMY
Missouri River Division, Corps of Engineers
Division Laboratory
Omaha, Nebraska

Perkin Elmer AAGF Metals

FAMIS Number: 2570
Project Name: N L Industries-Taracorp 1st Qtr 94 GW Sampling
QC Identifier: Laboratory Control Sample (LCS)

Sample Description: Water
LCS Source: VHG Labs, Inc. MRD Lab Code: PEGF2
Lot Number: 301260A 301260B Expiration Date: 31 Jul 94
Analyst: A. Hindemith Batch: 9404181525

RESULTS (µg/L)

Analyte	EPA Method	True Value	Result	%Rec	Detection Limit	Date Analyzed
Sb	7041	20	18	90	2	15 Apr 94
As	7060	20	18	90	2	18 Apr 94
Pb	7421	20	20	100	2	19 Apr 94
Se	7740	20	23	115	2	26 Apr 94
Tl	7841	20	20	100	2	18 Apr 94

Laboratory Comments:

Approved By: Prem N. Amin
AMH

Date: 5.6.94

C27

DEPARTMENT OF THE ARMY
Missouri River Division, Corps of Engineers
Division Laboratory
Omaha, Nebraska

Mercury by AACV

FAMIS Number: 2570
Project Name: N L Industries-Taracorp 1st Qtr 94 GW Sampling
QC Identifier: Method Blank

Sample Description: Water
Method: EPA Method 7470
Analyst: T. Shannon

Date Analyzed: 29 Apr 94
Batch: 9404291035B

RESULTS (µg/L)

Analyte	Result	Det Limit
Hg	u	0.20

u: Below Detection Limit

Laboratory Comments:

Approved By: Brenda Brown DSSA Date: 5-5-94

C28

DEPARTMENT OF THE ARMY
Missouri River Division, Corps of Engineers
Division Laboratory
Omaha, Nebraska

Mercury by AACV

FAMIS Number: 2570
Project Name: N L Industries-Taracorp 1st Qtr 94 GW Sampling
QC Identifier: Laboratory Matrix Duplicate

ample Description: Water
MRD Lab Sample No.: 940408-H007
Client Sample No.: WMW104-10GWQ
Method: EPA Method 7470
Analyst: T. Shannon

Date Sample Taken: 07 Apr 94
Date Sample Received: 08 Apr 94
Date Digested: 28 Apr 94
Date Analyzed: 29 Apr 94
Dilution Factor: 1.0
Batch: 9404291035B

RESULTS (µg/L)

Analyte	Sample Result	Duplicate Result	RPD	Detection Limit
Hg	u	u	NC	0.20

u: Below Detection Limit
NC: Not Calculable

Laboratory Comments:

Approved By: Prem V. Arora Date: 5.5.94
DESA

C29

DEPARTMENT OF THE ARMY
Missouri River Division, Corps of Engineers
Division Laboratory
Omaha, Nebraska

Mercury by AACV

FAMIS Number: 2570
Project Name: N L Industries-Taracorp 1st Qtr 94 GW Sampling
QC Identifier: Matrix Spike, Matrix Spike Duplicate

ample Description: Water
RD Lab Sample No.: 940408-H007
Client Sample No.: WMW104-10GWQ
Method: EPA Method 7470
Analyst: T. Shannon

Date Sample Taken: 07 Apr 94
Date Sample Received: 08 Apr 94
Date Digested: 28 Apr 94
Date Analyzed: 29 Apr 94
Dilution Factor: 1.0
Batch: 9404291035B

RESULTS (µg/L)

Sample Result	Spike Added	Conc MS	%Rec MS	Conc MSD	%Rec MSD	RPD
u	1.00	0.98	98	0.99	99	1.0

u: Below Detection Limit
%Rec: Percent of the spike recovered from the matrix
ontrol Limits: 75-125 (if [spike added] > [sample]/4)

aboratory Comments:

oved By: Prem N. Arora Date: 5.5.94
0550

C30

DEPARTMENT OF THE ARMY
Missouri River Division, Corps of Engineers
Division Laboratory
Omaha, Nebraska

Mercury by AACV

FAMIS Number: 2570
Project Name: N L Industries-Taracorp 1st Qtr 94 GW Sampling
QC Identifier: Laboratory Control Sample (LCS)

Sample Description: Water
LCS Source: Fisher Scientific
Lot Number: 931265-24
Method: EPA Method 7470
Analyst: T. Shannon

Date Analyzed: 29 Apr 94
MRD Lab Code: HG4
Expiration Date: 31 Mar 95
Batch: 9404291035B

RESULTS (µg/L)

Analyte	Result	True Value	%Rec	Detection Limit
Hg	1.02	1.00	102	0.20

Laboratory Comments:

Approved By: Penny N. Arms Date: 5.5.94
DESD